Southern California's Computer Magazine

Nov. 9, 1992 • #102

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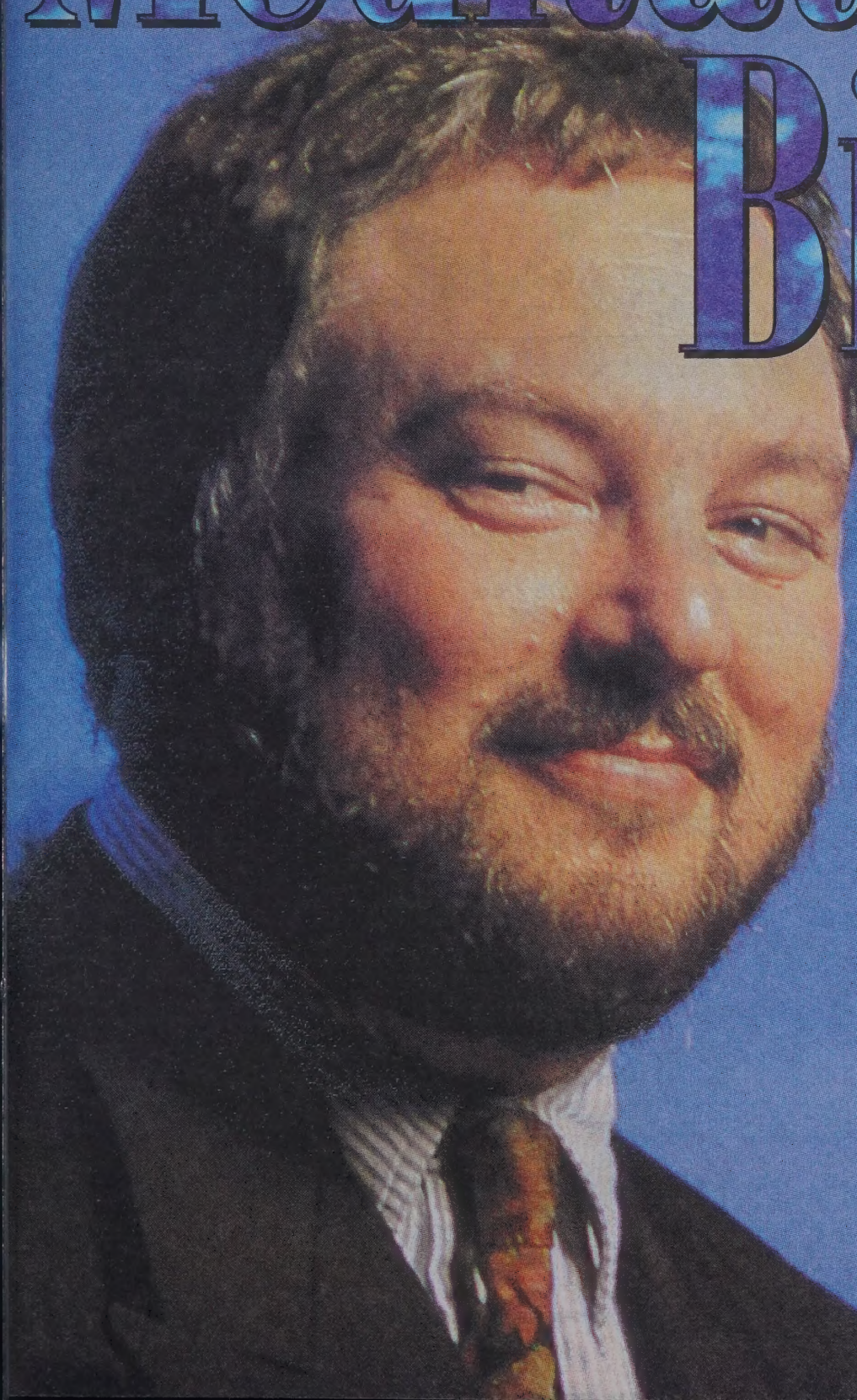

Kaleida CEO Nat Goldhaber On IBM/Apple's Multimedia Venture:

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Interview By John Perry Barlow

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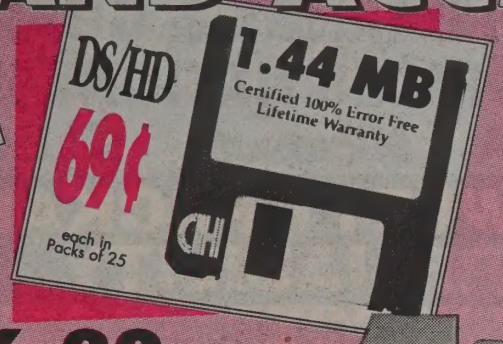

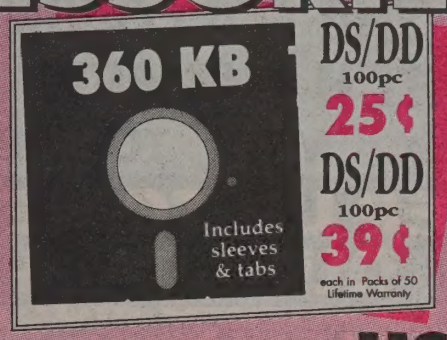

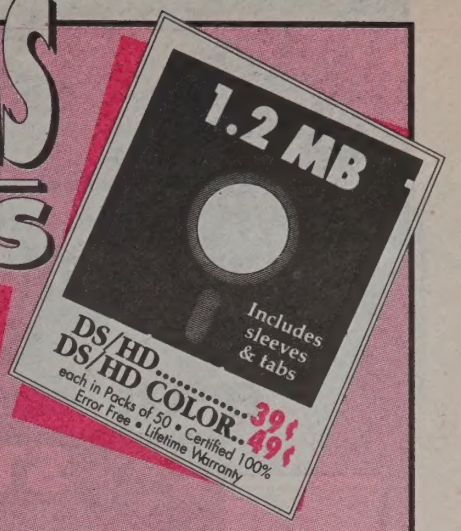

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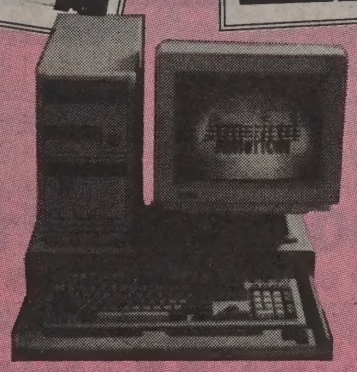

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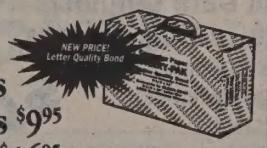

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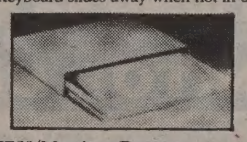

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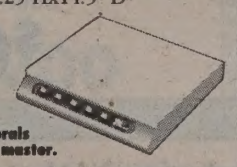

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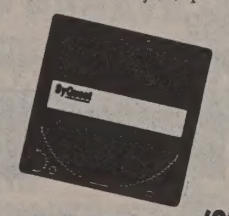

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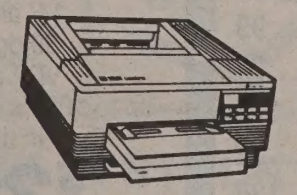

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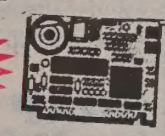

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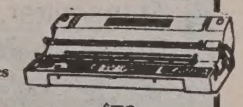

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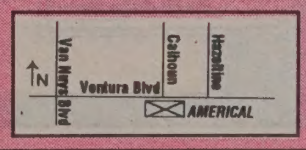

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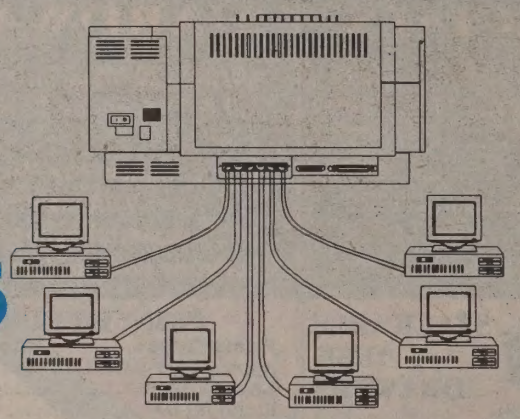

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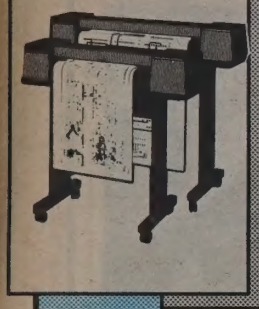

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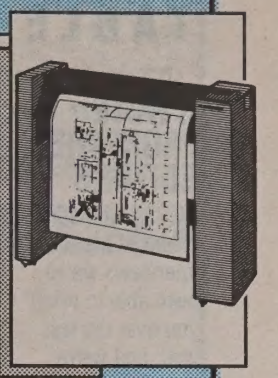

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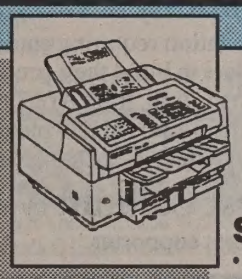

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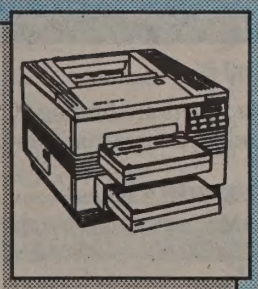

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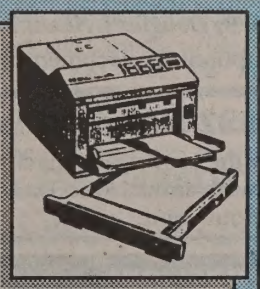

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A NOTE FROM THE EDITORS

We're admittedly proud of the interviews we've been able to bring you over the last year, and we're wrapping up 1992 on a pretty cheerful note.

Sometime last summer Barlow (ex-cattle rancher, Grateful Dead lyricist, and cofounder of the Electronic Frontier Foundation) announced that he was about to take a trip to Japan with Kaleida CEO Nat Goldhaber. "Oh good," I said, with fond memories of the interview we did with Goldhaber back in 1987. "As long as you're sitting on the plane all that time, bring a tape recorder and do an interview..."

By the time editorial cold feet caught up with me (after all, Kaleida's a long way from having any products, and what would Nat be able to talk about this early...), interviewer and interviewee were having a fine old time with the whole notion.

The interview didn't actually take place on the plane, as it turned out. It wound up happening in the treehouse attached to Nat's kids' swing set, which may have something to do with its utter lack of solemnity.

We hope you have fun reading it, too, and come away with some new ideas.

—*ME*

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Nat Goldhaber, whose last cross-platform adventure was TOPS, talks about the possibilities and challenges ahead for his new company Kaleida—a joint venture between Apple and IBM.

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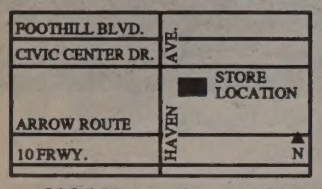

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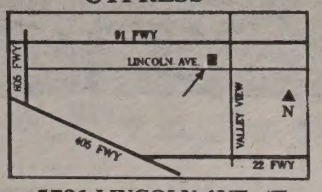

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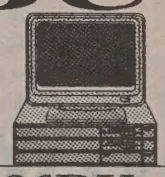

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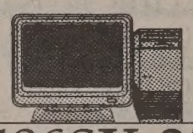

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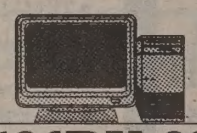

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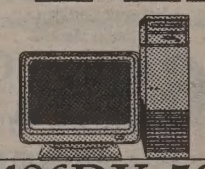

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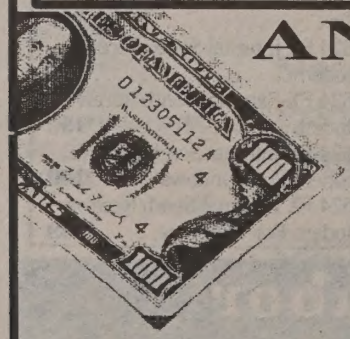

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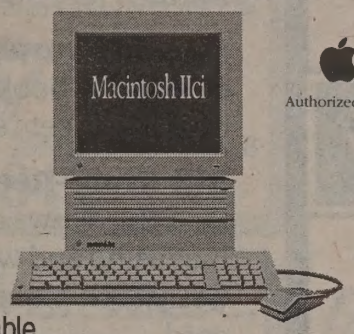

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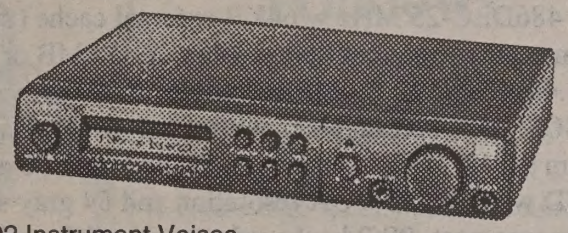

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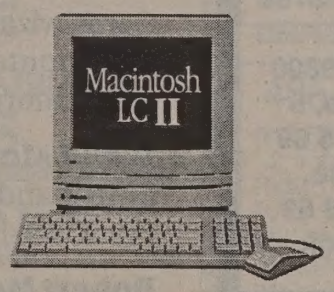

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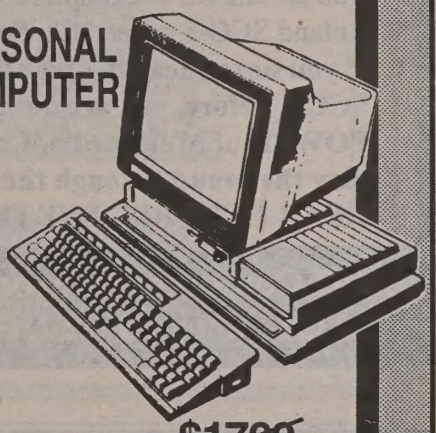

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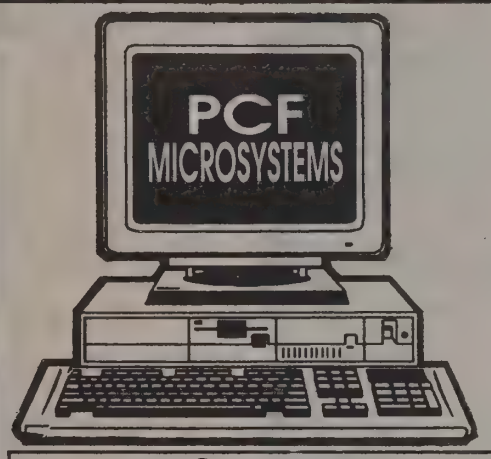

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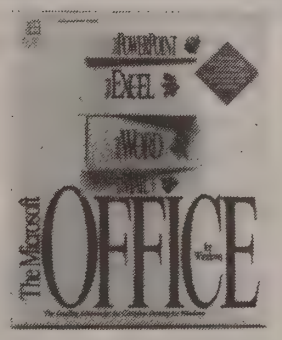

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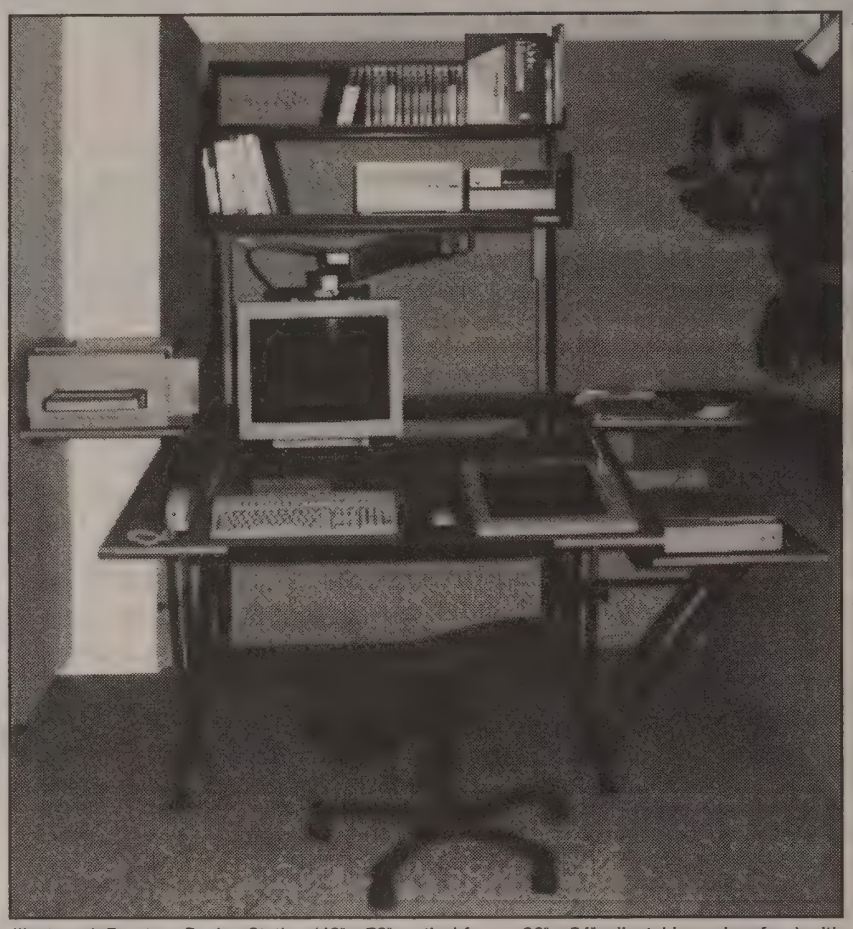

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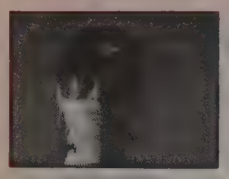

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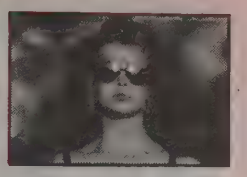

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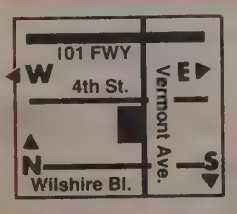

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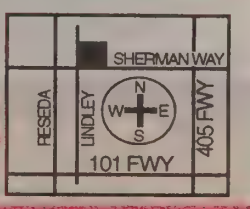

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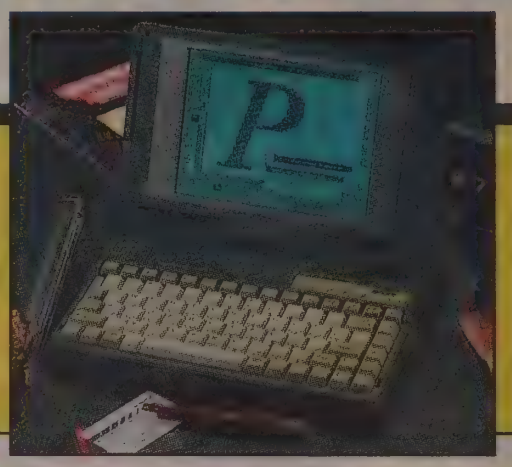

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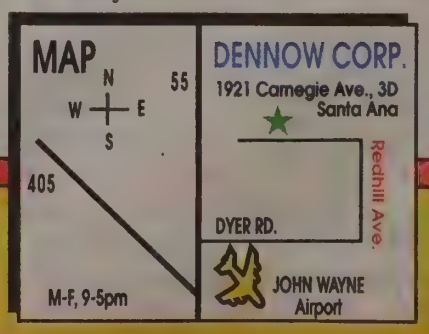

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INDUSTRY INSIGHT

New Processors, New PowerBooks

BY PAUL HOFFMAN

NEW CPUS WILL RUN FASTER, BUT SPEED INCREASES MAY BE ELUSIVE

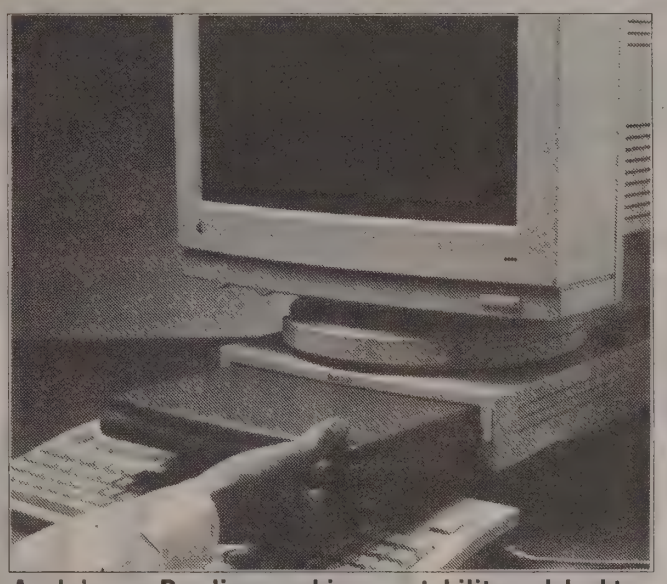
Chip designers have their work cut out for them in the next few years. Although advances in manufacturing continue to drive chip prices down, users' insatiable desire for speed has forced chip designers to find tricks and quirks in order to make the next generation of chips.

At the recent Microprocessor Forum, sponsored by the excellent (if costly) *Microprocessor Report* newsletter, technical details about the most recent, and a few unannounced, CPUs were revealed. These details show that the speed improvements that we have seen in the previous few years in microcomputers may not all come from faster CPUs in the future.

Intel gave a few more details about its forthcoming Pentium processor (see story below about the name of this CPU). The chip, originally called the "P5" and "i586" was supposed to be released by now, but Intel delayed the shipment for undisclosed reasons. The new chip will be significantly faster than the current crop of 486 CPUs due to its superscalar nature, which allows two instructions to execute at the same time under many conditions. Without giving any real examples, Intel said that the processor would run twice as fast as 486s at the same clock speed on software that was recompiled for the Pentium, and would run five times as fast for floating-point math instructions. The chip has two separate (but small) caches, one for instructions and one for data. The dual-cache method lets the chip run faster than a single larger cache and allows it to speed execution of branch statements.

Paul Hoffman is an industry analyst who has been covering microcomputer technology for ten years. He can be reached on Internet (phoffman@well) and MCI Mail (264-3171). He also writes popular microcomputer books.

The new CPU has a much faster floating-point arithmetic section that will greatly speed up programs that use this type of math, such as some CAD and graphics programs. Again, the speed increase will be even more noticeable on programs that are specifically recompiled for the Pentium. The chip also tracks internal data integrity, something that Intel and the Intel clone makers have ignored in the past. The internal parity coverage only slows the chip down by a tiny fraction, but gives much more assurance that the processor is working as expected.



Apple's new Duo line combines portability and desktop capability.

Many other chip manufacturers showed their new designs as well. In fact, from the techniques detailed in the other presentations, it became clear that Intel still has lots of tricks that it can use in future processors that will give it significant speed increases. During the two-day forum, ARM and AT&T showed the workings of their low-end RISC processors that can be used in hand-held computers; IBM and Cyrix showed how they got improved performance in their Intel clone CPUs; Motorola described the changes that it will make for the next generation of CPUs used in Macintoshes (the 68060); and DEC described the future of its Alpha RISC chip. Of the presentations, Motorola's was the most disappointing, promising only a lower improvement in speed than Intel and no delivery until almost two years from now.

Chip manufacturers have to be sure that new chips work with old software, and that has always caused them problems. The new Pentium chip, as well as the 68060, will both work with old software just fine, but old software won't run as fast as software that has been specifically compiled for the new chip. This is due to the way that the new chips get their speed boost. The new generation of chips can run two (and in some cases up to five) instructions at the same time. However, the instructions must all be "compatible" for them to execute in this fashion; otherwise, the chip runs them one at a time like in the current models. Reordering the instructions to work best on the new processor should not slow them down for old processors.

Intel stressed that it was working with compiler vendors to make sure they understood the rules for making programs run faster on Pentium than on earlier processors. It is likely that most major software companies will release new software next year that takes advantage of the Pentium. Likewise, Apple is sure to modify the Macintosh operating system software for the 68060. However, users may discover that although benchmarks run much faster on the new families of chips, their daily work will probably not get the same speed improvements.

NEW DOCKING POWERBOOKS

Being proprietary has some advantages, and Apple is using that advantage to the fullest with its new Duo System, a notebook com-

puter similar to the PowerBook which can be docked to a desktop unit when you are in your office. The idea has been tried unsuccessfully many times in the PC industry, but no one could ever agree on docking standards so the solutions always ended up being for a single vendor. Apple, being essentially the only manufacturer of Macs, could make the specification and know that only it had to live by it.

The Duo system eliminates one of the major hassles with earlier PC docking systems: cables for connecting the portable to the desktop system. The docking unit sucks the portable into its slot, rather like the way a videotape is inserted into a VCR. Instead of having to hook multiple cables between the two systems, the user simply inserts the portable in the slot. The portable part of the Duo system is available now and costs less than the equivalent PowerBooks due to the fewer ports and no floppy drive (note that the lack of the floppy drive makes the Duo much lighter than the PowerBook). The docking station can be connected to any desktop display up to 16 inches, a keyboard and mouse, and floppy drive.

Apple's incredible success with the PowerBook line (over 400,000 sold in the first year) has given it a great deal of clout in the portable market. While many PC portables let you connect the portable to a full-size screen, the low speed and high prices of those systems have made users shy away from using them as their primary computers. The Duo system, on the other hand, is specifically designed for portable and desktop use and offers enough power for almost all business users in a single package. The docking unit is not cheap ($1080), but the combination gives businesspeople who need most of their resources available while traveling an easy way to create a full desktop system when they return from their trip. People who want a full computer in a portable will buy the standard PowerBooks; those who only want the ports on their desks will buy Duos.

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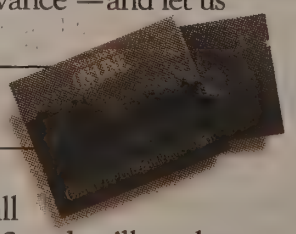

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INTEL ANNOUNCES PENTIUM

Since it wants to be able to trademark the name of its new CPU, Intel has dubbed the still-unreleased product "Pentium" instead of the next logical number, the 80586, 586, or i586. Internally, the not-at-all-secret code name for this chip has been the "P5," and the next generation of the chip is being called the "P6" by Intel employees. However, Intel lost the trademark protection on the numbers "386" and "486" a few years ago, and wants to be able to call its CPUs by names that can't be appropriated by the CPU clone makers.

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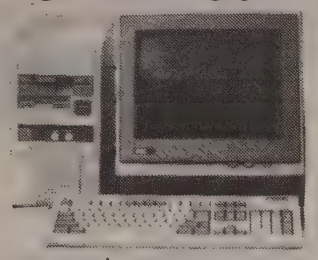

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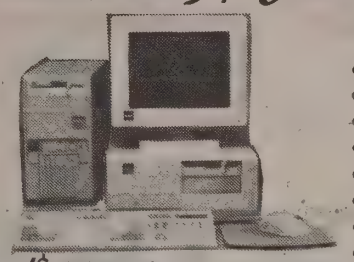

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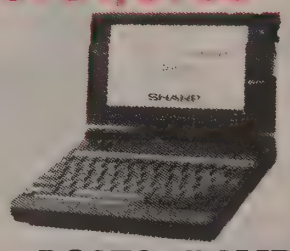

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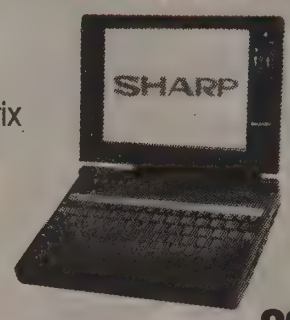

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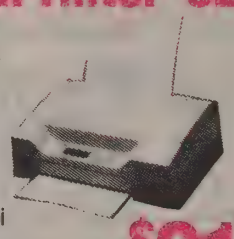

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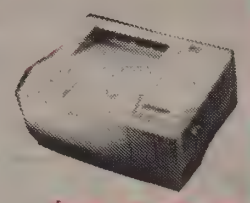

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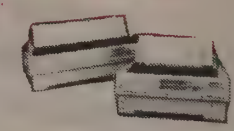

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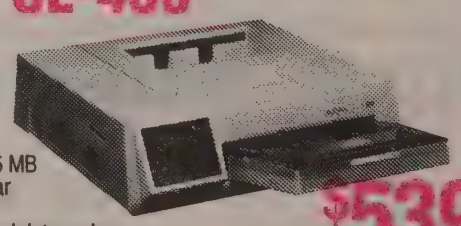

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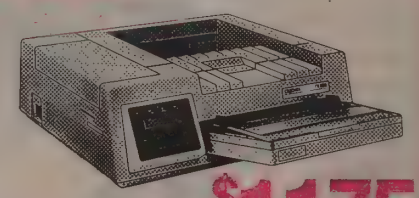

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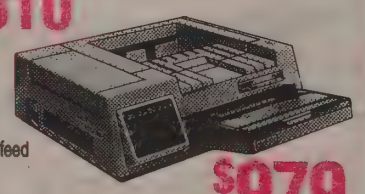

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HP Connectivity Pack 89

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HPIIP, IIIP Toner 69
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Pacific Page Postscript PE 369
Pacific Page XL Cartridge. 749
HP LaserJet Fax. 925

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BJ-330 132 col, 600cps 619
BJ-200 360dpi 335
BJC-800/820 Color 1935/2065

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NEW
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10PPM, HP3 Compatible 1MB, 35 Fonts
HJ-1001 Inkjet. 299

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ever, leaves much to be desired from a marketing standpoint. According to the company that helped Intel name the chip, the idea was that "penta" means "5" (like in the 586) and that "ium" sounds like a chemical element. However, many industry leaders said that Pentium sounds more like something that comes in a Procter and Gamble product than a chip. Some computer companies said that they would initially use the Pentium name in their advertising for new systems using the chip, but would drop the name as soon as other chip makers come out with their own 586 chips.

Pentium may have connotations of "5" for some people, but the phonics of the name can conjure other images. The name sounds similar to "pent up" and "pendulum," neither of which gives much confidence to someone buying a high-end computer. Intel's choice of the name is also fairly short-sighted. Intel is already working hard on the next generation after Pentium, and that chip could be released in as little as two years. What's next—Hexium? Sexium? Intel will have to find a completely different name for the next CPU, which will make it seem like their line of chips is less contiguous than that of their competitors, who use boring names like 486, 586, and so on.

FRANKLIN LOWBALLS POCKET-SIZE COMPUTER MARKET

While we wait until sometime next year for $1000 personal digital assistants (PDAs), Franklin Electronic Publishers has challenged the industry by releasing the $200 Digital Book System, which can display the full text of books in a 3" x 5" package that weighs only 5 ounces. Admittedly, the Digital Book System will not take notes or send faxes, but if all you want is one of the many reference books Franklin offers in a tiny package, you won't want to spend the large amounts for next year's models.

The DBS-1 computer can accept two book modules, each of which can hold up to 45MB of information. It has a full QWERTY-style keyboard and comes with built-in software for searching, and even limited note-taking. The base unit comes with two books, a Merriam-Webster dictionary with 275,000 definitions and eighty thousand common spelling corrections, and a "book" that plays ten word games. It has a 5-line, 40-character screen that can handle rudimentary graphics. Using four lithium button batteries, you can use the system up to sixty hours between battery changes.

Franklin freely admits "the DBS-1 is Franklin's razor; the Digital Books are the blades." Two additional titles are already available: Video Companion, which lists summaries, stars, and so on for seven thousand movies available on video ($60) and the Handbook of Adverse Drug Interactions that helps physicians predict reactions between drugs ($100). Likely future books include the Baseball Encyclopedia, the Bible, thesauruses, and other professional reference books.

As companies like Apple and EO try to define the PDA market in the $1000–$3000 range, other companies like Franklin will be able to capture the low end of the market with smart single-purpose computers. Although companies like Casio and NEC haven't done very with their small note-taking computers in the US, they have a strong following in Japan and Europe. If Americans have been waiting until they see the first crop of PDAs, they may turn to the keyboard equivalents when they see the price and size of the PDAs next year. Some innovations that have only been made commercial in Japan (such as built-in barcode scanners) may appear here in portables costing $200–$500 to challenge the systems that will surely cost at least $700. ■

ORANGE COUNTY'S LOW PRICE LEADER
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- Mini Tower Case
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- 1.2 Or 1.4MB Floppy Drive
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- Mini Tower Case
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- 1.2 Or 1.4MB Floppy Drive
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- Clock/Calendar
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- Mini Tower Case
- 40MHz 386DX MB w/1MB RAM Exp. to 16MB
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- 80387 Math Co-Processor Socket
- 101 Key Enhanced Keyboard
- Real Time Clock/Calendar
- 2 Serial Ports/1 Printer Port/Game
- VGA Color Monitor w/16 Bit Card

$750

486DX-33MHz w/64K Cache "FULLY LOADED SYSTEM"
- Mini Tower Case
- 33MHz 486MB w/1MB RAM Exp. to 64MB
- 220 W Power Supply
- 1.2 & 1.4MB Floppy Drives
- Math Co-Processor
- 101 Key Enhanced Keyboard
- Real Time Clock/Calendar
- 2 Serial Ports/1 Printer Port/Game
- VGA Color Monitor w/16 Bit Card

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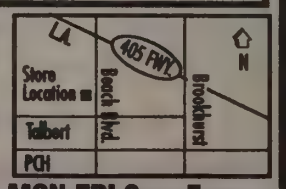

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WHAT'S NEW IN THE PC INDUSTRY?

1. Customers, are no longer willing to pay extra for service. The illusion is that all vendors provide comparable service and a similar degree of customer satisfaction.
2. Components with good specifications do not necessarily mean they are better components or the most appropriate. For example: non-interlaced monitors are not guaranteed to be flicker free; Faster RAM chips may ultimately cause timing problems.
3. Name brand components no longer guarantee durability nor reliability. Recycled parts, pushed-to-the-limit CPU's and incompatible peripherals, enable some vendors to advertise eye-catching low cost systems that have "good specs" on paper; but spend more time in the shop than in operation.

Windows Workstations

BINARY 386 SX-33 MHz

- 4 MB RAM (Exp. to 32 MB)
- 2 Serial / 1 Parallel / 1 Game Port
- TEAC 5-1/4" Floppy Drive
- TEAC 3-1/2" Floppy Drive
- Super VGA Color Monitor (1024 x 768 Res., .28 mm)
- Super VGA Display Card (1MB RAM, 1024 x 768)
- 80 MB Hard Disk
- Mid-Size Tower Case with 230W
- Full Size AT Enhanced Keyboard

$1125 / FREE Mouse

BINARY 386 DX-33 MHz

- 4 MB RAM (Exp. to 32 MB)
- 2 Serial / 1 Parallel / 1 Game Port
- TEAC 5-1/4" Floppy Drive
- TEAC 3-1/2" Floppy Drive
- Super VGA Color Monitor (1024 x 768 Res., .28 mm)
- Super VGA Display Card (1MB RAM, 1024 x 768)
- 80 MB Hard Disk
- Mid-Size Tower Case with 230W
- Full Size AT Enhanced Keyboard

$1225 / FREE Mouse

BINARY 386 DX-40 MHz

- 4 MB RAM (Exp. to 32 MB)
- 2 Serial / 1 Parallel / 1 Game Port
- TEAC 5-1/4" Floppy Drive
- TEAC 3-1/2" Floppy Drive
- Super VGA Color Monitor (1024 x 768 Res., .28 mm)
- Super VGA Display Card (1MB RAM, 1024 x 768)
- 170 MB Hard Disk
- Mid-Size Tower Case with 230W
- Full Size AT Enhanced Keyboard

$1325 / FREE Mouse

PERIPHERALS & UPGRADES

VGA CARDS

Super VGA Card (1024 x 768, 1 MB)	$68
Super VGA w/W.D. Accelerator (1 MB)	$105
Diamond 24X (24 Bit Processor, Hi-Color)	$178
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14" Super VGA (1024 x 768, .28 mm)	$275
14" Super VGA (Non-Int., .28 mm)	$315
15" Flat VGA (Non-Int., .28 mm)	$465
15" NEC 3FG (1024 x 768)	$665
15" NEC 4FG (1024 x 768)	$785
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TEAC 1.44 MB, 3-1/2" Floppy	$55
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80 MB Hard Disk (W.D. 17 MS)	$235
100 MB Hard Disk (NEC, 17 MS)	$285
120 MB Hard Disk (Maxtor, 17 MS)	$310
170 MB Hard Disk (Connor, 17 MS)	$340
210 MB Hard Disk (Maxtor, 15 MS)	$400
340 MB Hard Disk (Maxtor, 15 MS)	$695

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Special:	Irwin Tape Back-up (80 to 250 MB)	$130
	Colorado 120 MB	$199
	Colorado 250 MB	$265
	Colorado 700 MB	$1080
	Tape Cartridge 120/250/700 MB	$24/27/45

Binary Group

WHAT'S NOT NEW FOR BINARY?

1. We believe that good service should not add more to a system's price tag. In fact, it is to our advantage to build systems with the highest quality components; providing, what we consider to be the best values for our customers and the least service for us.
2. ALL BINARY sales personnel are technical professionals. We save our customers money by suggesting the right configuration...not the cheapest. Cheap configurations make appealing advertisements, not lasting and reliable investments.
3. Continuation of the traditional way of doing businesses...dedicated professionals who provide a great product at great price, backed by a solid warranty and a seven year old company that has out lived the competition.

Advanced CAD/CAM & Windows Workstations

BINARY 486 DX-25 MHz

- Intel 486 DX-25 CPU
- 4 MB RAM w/ 64K Cache (Exp. to 32 MB w/ 256 KB)
- 2 Serial / 1 Parallel / 1 Game
- TEAC 1.2 MB Floppy (5-1/4")
- TEAC 1.44 MB Floppy (3-1/2")
- Super VGA Display Card (1MB, Western Digital Accelerator, Paradise Comp.)
- Super VGA Monitor (1024 x 768, .28 mm)
- 170 MB Hard Disk
- Mid-Size Tower Case
- Full Size AT Enhanced Keyboard

$1590/ FREE Mouse

BINARY 486 DX-33 MHz

- Intel 486 DX-33 CPU
- 4 MB RAM w/ 64K Cache (Exp. to 32 MB w/ 256 KB)
- 2 Serial / 1 Parallel / 1 Game
- TEAC 1.2 MB Floppy (5-1/4")
- TEAC 1.44 MB Floppy (3-1/2")
- Super VGA Display Card (1MB, Western Digital Accelerator, Paradise Comp.)
- Super VGA Monitor (1024 x 768, .28 mm)
- 170 MB Hard Disk
- Mid-Size Tower Case
- Full Size AT Enhanced Keyboard

$1790/ FREE Mouse

BINARY 486 DX-50 MHz

- Intel 486 DX-50 CPU
- 4 MB RAM,w/ 64K Cache (Exp. to 32 MB w/ 256 KB)
- 2 Serial / 1 Parallel / 1 Game
- TEAC 1.2 MB Floppy (5-1/4")
- TEAC 1.44 MB Floppy (3-1/2")
- Super VGA Display Card (1MB, Western Digital Accelerator, Paradise Comp.)
- Super VGA Monitor (1024 x 768, .28 mm)
- 170 MB Hard Disk
- Mid-Size Tower Case
- Full Size AT Enhanced Keyboard

$2025/ FREE Mouse

PERIPHERALS & UPGRADES

MICE & DIGITIZERS

Microsoft Compatible, 3 Buttons	$25
Logitech Serial Mouse	$68
Logitech Bus (Mouseman)	$75
Microsoft Mouse	$65
Summasketch Digitizer 12 x 12	$295
Kurta Cordless 11 x 11 Digitizer	$345

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ProAudio Spectrum Plus w/SCSI	$130
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Sound Blaster Pro w/SCSI	$165
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Dow Falls To Yearly Low Amid Reports Fed Won't Ease Interest Rates

The Dow Jones Industrial Average fell to its lowest level in 1992 last month after reports surfaced that the Federal Reserve will most likely refuse to cut interest rates further until after the presidential election. Poor earnings coupled with investor uncertainty surrounding the upcoming election held Wall Street in check during the monthlong trading session ended October 23rd.

The net effect of that news sent shivers through investors and jitters through Wall Street, taking the Dow Industrials down 42.68 points, or 1.31%, to 3207.64.

Computer stocks, on the other hand, were able to buck the national downtrend as those stocks represented in the *MicroTimes* Stock Index leapt up 222.75 points, or a hefty 6.72%, before settling in at 3536.03.

In the accompanying table, gaining shares outpaced lagging issues by a 22 to 10 count, while nine stocks were able to sprint to new 52-week highs and eight stocks fell to new 52-week lows.

Informix was among the more popular stocks with investors last term as that stock rose $6.88 a share, or 33.54%, and was the largest percentage gainer of the lot. The company reported third-quarter earnings of 37 cents a share—a 56% increase in profits compared with earnings registered in the year-earlier quarter. Separately, Lehman Brothers optimistically raised its investment rating for the firm to "outperform" from "high risk." In addition, Lehman Brothers also boosted its 1992 and 1993 profit projections for the firm. As a result, Informix was able to climb to its new 52-week high of $31 before slipping down to its close of $27.38.

IBM was unable to break away from its southerly route last month despite the company's attempts to win investors' praise by unveiling a new expanded consulting division and a new line of low-cost machines. During the trading session, the stock fell to a new 52-week low of $67.75 before settling in at $69.13, down $13.13 a share, or 15.96% from the previous week. Slow computer sales have been cited as a primary contributor to IBM's poor performance. IBM was our portfolio's largest dollar loser.

Borland International also witnessed its stock price fall as that stock shed 16.34% of its value, or $6.25 a share, before reaching a closing mark of $32. Last period, Borland reported second-quarter earnings amounting to 20 cents a share compared with a $4.21-per-share loss on a charge against earnings last year. Borland was the largest percentage loser of the lot. ■

EXCH	COMPANY		TICKER SYMBOL	CLOSING PRICE 09/25/92	CLOSING PRICE 10/23/92	NET CHANGE IN MONTH	PERCENT CHANGE IN MONTH	P/E RATIO	ANNUAL DIVIDEND RATE	ANNUAL DIVIDEND YIELD	ANNUAL HIGH	ANNUAL LOW
	SOFTWARE											
OTC	Adobe	(L)	ADBE	28.25	30.50	2.25	7.96	15	0.32	1.05	68.50	25.25
OTC	Aldus	(L)	ALDC	12.75	14.50	1.75	13.73	24	0.00	0.00	44.25	10.25
OTC	Autodesk	(H)	ACAD	43.38	51.00	7.63	17.58	26	0.48	0.94	53.00	23.25
OTC	Borland	(L)	BORL	38.25	32.00	-6.25	-16.34	-	0.00	0.00	86.75	25.25
OTC	Informix	(H)	IFMX	20.50	27.38	6.88	33.54	21	0.00	0.00	31.00	5.88
OTC	Lotus	(L)	LOTS	19.13	19.25	0.13	0.65	12	0.00	0.00	38.75	14.75
OTC	Microsoft	(H)	MSFT	78.75	88.63	9.88	12.54	34	0.00	0.00	90.00	58.50
OTC	Novell		NOVL	28.13	31.00	2.88	10.22	41	0.00	0.00	32.50	21.38
OTC	Oracle	(H)	ORCL	19.00	23.13	4.13	21.71	47	0.00	0.00	23.13	12.00
OTC	Software Publishing	(L)	SPCO	9.25	8.38	-0.88	-9.46	-	0.00	0.00	26.25	6.75
OTC	Symantec	(L)	SYMC	10.25	11.75	1.50	14.63	13	0.00	0.00	51.00	5.88
	HARDWARE											
OTC	Apple		AAPL	45.50	48.75	3.25	7.14	12	0.48	0.98	70.00	42.75
OTC	AST Research		ASTA	15.00	18.50	3.50	23.33	9	0.00	0.00	24.50	11.25
NYS	Commodore		CBU	7.25	7.38	0.13	1.72	9	0.00	0.00	19.25	6.75
NYS	Compaq	(H)	CPQ	33.63	38.63	5.00	14.87	17	0.00	0.00	42.38	22.13
NYS	Digital Equipment		DEC	40.13	33.88	-6.25	-15.58	-	0.00	0.00	65.50	33.25
OTC	Dell	(H)	DELL	28.13	34.63	6.50	23.11	19	0.00	0.00	34.88	13.91
NYS	Hewlett-Packard		HWP	57.75	55.13	-2.63	-4.55	15	0.80	1.45	85.00	44.63
NYS	IBM	(L)	IBM	82.25	69.13	-13.13	-15.96	-	4.84	7.00	101.38	67.75
NYS	Silicon Graphics		SGI	18.50	23.63	5.13	27.70	-	0.00	0.00	29.75	14.13
OTC	Sun Microsystems		SUNW	30.75	32.00	1.25	4.07	19	0.00	0.00	35.88	20.75
NYS	Xerox		XRX	78.75	77.25	-1.50	-1.90	19	3.00	3.88	82.25	60.25
NYS	Tandy		TAN	27.25	26.75	-0.50	-1.83	12	0.60	2.24	31.25	22.25
	CPU'S											
NYS	Advanced Micro Devices		AMD	11.50	14.38	2.88	25.00	5	0.00	0.00	21.50	7.38
OTC	Intel	(H)	INTC	64.75	67.00	2.25	3.47	17	0.40	0.60	69.00	39.75
NYS	LSI Logic		LSI	6.38	7.00	0.63	9.80	-	0.00	0.00	9.88	4.88
NYS	Motorola	(H)	MOT	86.00	95.25	9.25	10.76	24	0.76	0.80	97.75	57.50
	COMMUNICATIONS											
NYS	AT&T		T	43.50	43.13	-0.38	-0.86	92	1.32	3.06	45.38	32.88
NYS	BellSouth Corp.		BLS	52.00	51.13	-0.88	-1.68	15	2.76	5.40	55.50	43.38
OTC	MCI	(H)	MCIC	35.00	36.25	1.25	3.57	17	0.10	0.28	36.75	25.25
NYS	Northern Telecom	(L)	NT	32.63	34.25	1.63	4.98	18	0.36	1.05	49.25	30.50
NYS	Pacific Telesis		PAC	44.00	40.13	-3.88	-8.81	15	2.16	5.38	45.00	36.88

KEY: NYS = NEW YORK ASE = AMERICAN OTC = OVER THE COUNTER
(H) = NEW HIGH REACHED IN PERIOD (L) = NEW LOW REACHED IN PERIOD

MARKET DIARY:

ADVANCES	22
DECLINES	10
UNCHANGED	0
NEW HIGHS	9
NEW LOWS	8

MOST ACTIVE ISSUES:

LARGEST DOLLAR GAINER	Microsoft	$ 9.88
LARGEST DOLLAR LOSER	IBM	$ -13.13
LARGEST PERCENTAGE GAINER	Informix	33.54 %
LARGEST PERCENTAGE LOSER	Borland	-16.34 %

	CLOSE 09/25/92	CLOSE 10/23/92	NET CHANGE IN MONTH	PERCENT CHANGE IN MONTH
MICROTIMES STOCK INDEX	3313.28	3536.03	222.75	6.72
DOW JONES INDUSTRIAL AVERAGE	3250.32	3207.64	-42.68	-1.31
STANDARD & POOR'S 500 STOCK INDE	414.35	414.10	-0.25	-0.06
N.Y.S.E. COMPOSITE	227.73	227.83	0.10	0.04
NASDAQ COMPOSITE	577.20	597.30	20.10	3.48

CLOSING QUOTES FOR GRAPH:

DATE	MICRO TIMES	DOW JONES
04/10/92	3566.89	3255.37
05/08/92	3642.36	3369.41
06/05/92	3562.74	3398.69
07/02/92	3182.43	3330.29
07/31/92	3367.19	3393.78
08/28/92	3198.48	3267.61
09/25/92	3313.28	3250.32
10/23/92	3536.03	3207.64

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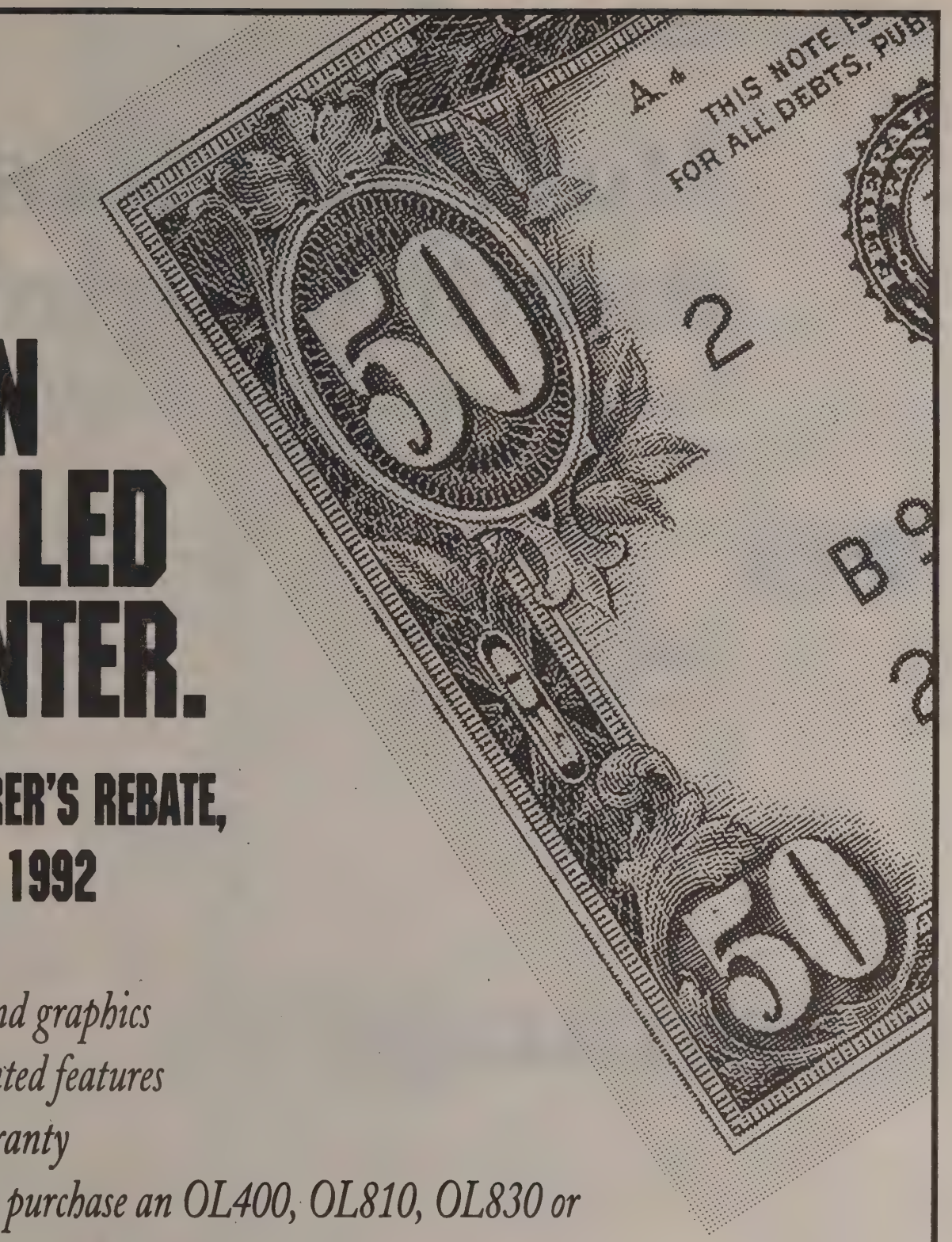

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More On Access To Public Information

Government Is For *The People Only When It Is* By *The People*

BY JIM WARREN

This column concerns what ain't, but could be—as soon as some of us do it.

MONITORING THE PUBLIC'S BUSINESS

Two issues ago, this column reviewed examples of citizen access to computerized public records. It must have struck a nerve, for it generated more reader mail and speaking invitations than any column since we began this series in June 1988.

As we spoke to several lay groups, we were surprised by how little most folks seem to know about how their government—local, state, or national—operates and how they can monitor it and participate in it. On the other hand, we were especially delighted to see their furious interest in learning more and pursuing informed action.

We hope it continues long after the recent elections and Perot Candor. Government is *for* the people *only* when it is *by* the people.

REALIZABLE FANTASIES

CALIFORNIA'S PUBLIC INFORMATION

The California Public Records Act (CPRA) mandates that most government records, memos, notes, and data are public, and that citizens can obtain copies at cost of copying.

Note: Although responsible agencies set copying costs at no more than the incremental cost of copying, others treat them as profit centers (uh, government calls it "income," not "profit") by prorating every conceivable cost into the "copying" fee—computer lease, building depreciation, etc.

Here are some examples of public information in California. Their uses are limited only by imagination (and sometimes statute). They are almost always maintained by their agencies in machine-readable form, but machine-readable copies may or may not be available. (If they're not, raise hell! Also, we'd like to know about it.)

Assessor records. These are the records of real estate property assessments. Their use is restricted by law to the singular purpose of assuring fair and accurate assessments—but that gives significant latitude. They contain at least the property owner's name and mailing address, the location of the property and its parcel number, its classification (residential, commercial, apartments, etc.), assessed value, homeowner exemption (if any), etc. (It's interesting to spot homeowner exemptions claimed by owners giving out-of-state mailing addresses.)

Assessor records may or may not include a detailed building description, e.g. number of bedrooms, floor area, etc. Some county assessors are withholding such information as an owner-privacy issue.

Some businesses and bureaucrats, such as real estate appraisers and building inspectors, are trying to penetrate that privacy protection. The appraisers want to make appraisals easier and more accurate—presuming, of course, that the assessor's descriptions are accurate. This has always been somewhat in question, even more so since Proposition 13 reduced the need for accurate descriptions for assessment purposes.

Some fine-seeking police-style building inspectors want to ferret out vile evildoers who dare to modify their homes without first bowing before bureaucrats and social engineers—and, of course, paying endlessly escalating fees. They require permits for changing a water heater, replacing roof shingles, plumbing a decorative fountain, etc. Ahhh, but I digress.

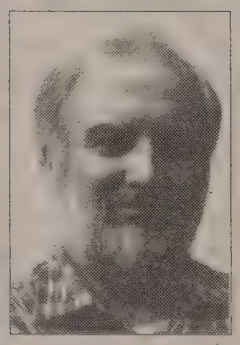
Assessor records are maintained in computer form and copies are usually available in machine form for no more than a few hundred dollars for an entire county.

Trade and professional licensing records. The state requires licenses for an amazing variety of occupations—beauticians, barbers, real estate sales creatures, teachers, building contractors, attorneys practicing before the California bar (or tavern), physicians, etc.

Machine-readable budgets are especially useful for citizen oversight. However, some jurisdictions have such records in machine form, but refuse to release them in any form except paper. On the other hand, some service-oriented jurisdictions are extending public access to such records by placing them on dial-up BBSes.

There has even been talk of licensing computer programmers, but such bureaucratic lunacy has so far been resisted in most states.

Although licensing serves the theoretical purpose of assuring competency and providing consumer protection, numerous reports have illustrated that it provides little more than a false façade of protection. Only a minuscule fraction of licenses are ever revoked, and consumers are usually prohibited from



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seeing complaints. One attorney commented that such licensing primarily functions as competition control and job security. In the case of building contractors, it appears to exist primarily to assure that worker's compensation is paid—usually to a state fund.

Although complaint files are rarely available, the names and addresses of license holders and usually some classification information are available as public records, and most licensing agencies will readily sell licensee lists on magtape.

Board, council, and commission agendas, minutes, and budgets. The agendas, minutes and budgets of almost every city council, county board of supervisors, school board, planning commission, water board, harbor district board, sewer district, parks district, etc., are now created and retained in machine-readable form—using word processors. They are always available in paper form, and can often be obtained on diskette—useful for searching months or years of such records for mentions of topics or names of interest. Machine-readable budgets are especially useful for citizen oversight. However, some jurisdictions have such records in machine form, but refuse to release them in any form except paper.

On the other hand, some service-oriented jurisdictions are extending public access to such records by placing them on dial-up BBSes (computer bulletin board systems). *Neat!*

We are most interested in knowing of those agencies that provide such online access. We're equally interested in knowing of agencies that refuse access to computerized records in computerized form.

From time to time in future columns, we will continue to outline public access to computerized public records at both state and federal levels.

DIGRESSION: TOYS VS. MINDTOOLS

Ever since microcomputing began in the mid-'70s, we have contended that these information processing machines are only as powerful as the information to which they have access for processing. Without significant data, they are merely innovative, delightful (frustrating) techno-toys. But, *with* access to significant information, they become potent tools to assist informed decision-making and innovation. They become unsleeping research librarians, policy analysts, vigilant accountants, and design assistants—whether one is designing a better mousetrap or a better, more responsive, more responsible government.

Their power to assist design and decision processes is limited only by their access to useful information, plus our ability to specify how they are to assist our analyses.

They are the modern-day Great Equalizer.

And perhaps nothing needs equalizing more than out-of-control government and bureaucracy. After all, it is the only societal entity that can legally steal, kidnap, imprison, and kill. And it is the entity that controls rampaging monopolies and corporations—or is controlled by them when citizens fail to remain vigilant. ■

Jim Warren founded InfoWorld, *the DataCast proposal for paperless electronic newspapers, Wireless Digital, Initiative, Inc., and one of the nation's largest public microcomputer conventions. He was founding host of PBS's* Computer Chronicles, *founding editor of* Dr. Dobb's Journal, *and has chaired various trade and professionals' organizations. He holds graduate degrees in computing (Stanford), medical information science (UC Medical Center), and mathematics & statistics, and once chaired the College of Notre Dame-Belmont Mathematics Dept. He organized and chaired the landmark First Conference on Computers, Freedom & Privacy (1991) sponsored by a dozen nonprofit civic, professional, and industry organizations, and received one of the first Electronic Frontier Foundation Pioneer Awards (1992). He is also a member of the board of directors of Autodesk, Inc.*

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Industry Group Opposes FBI Proposal

In the just-adjourned session of Congress, the FBI proposed the Digital Telephony bill, which would require vendors and operators of communications equipment to make the equipment in such a way that it could immediately be wiretapped by law enforcement. In response, a number of organizations and companies from the industry, ranging from the ACLU to the Software Publishers Association and AT&T to Oracle, issued a white paper opposing the bill for reasons ranging from cost to reduced competitiveness.

The bill failed to come up for discussion during the session, but it's reasonable to assume that it will be back in some form next year. In a continuing effort to keep our readers informed about legislative issues affecting the computer industry—and to present source documents whenever possible—we present the bill itself (in its most recent language, which transfers the determination of standards to the Attorney General and sets fines of $10,000 per day for noncompliance), the FBI's arguments in its favor, and the entire text of the industry white paper opposing it.

These documents were provided by the Electronic Frontier Foundation. (155 Second St., Cambridge, MA 02141, 617/864-0665, eff@eff.org)

—eds.

THE DIGITAL TELEPHONY BILL

102nd Congress
2nd Session

S. _____
[H.R. _____]

IN THE SENATE
[IN THE HOUSE OF REPRESENTATIVES]

M. _____ introduced the following bill; which was referred to the Committee on_____

A BILL

To ensure the continuing access of law enforcement to the content of wire and electronic communications when authorized by law and for other purposes.

Be it enacted by the Senate and the House of Representatives of the United States of America in Congress assembled,

SEC. 1. FINDINGS AND PURPOSES.

(a) The Congress finds:

(1) that telecommunications systems and networks are often used in the furtherance of criminal activities including organized crime, racketeering, extortion, kidnapping, espionage, terrorism, and trafficking in illegal drugs;

(2) that recent and continuing advances in telecommunications technology, and the introduction of new technologies and transmission modes by the telecommunications industry, have made it increasingly difficult for government agencies to implement lawful orders or authorizations to intercept wire and electronic communications and thus threaten the ability of such agencies effectively to enforce the laws and protect the national security; and

(3) that without the assistance and cooperation of providers of electronic communication services and private branch exchange operators, the introduction of new technologies and transmission modes into telecommunications systems without consideration and accommodation of the need of government agencies lawfully to intercept wire and electronic communications would impede the ability of such agencies effectively to carry out their responsibilities.

Continued on page 36

elephony

FBI Arguments In Support Of The Bill

The telecommunications systems and networks are often used to further criminal activities including white collar and organized crime, racketeering, extortion, kidnapping, espionage, terrorism, and trafficking in illegal drugs. Accordingly, for many years, one of the most important tools in the investigation of crime for Federal and State criminal law enforcement agencies has been the court authorized interception of communications. As illustrated below, the majority of original authorizations to intercept wire or electronic communications are conducted by State criminal law enforcement agencies.

Interception Applications Authorized

	State	Federal	Total
1984	512	289	801
1985	541	243	784
1986	504	250	754
1987	437	236	673
1988	445	293	738
1989	453	310	763
1990	548	324	872
Total	3440	1945	5385

Approximately, 3/8 of authorized interceptions were conducted by Federal agencies, while 5/8 of the authorized interceptions were conducted by State criminal law enforcement agencies.[1]

The recent and continuing advances in telecommunications technology, and the introduction of new technologies by the telecommunications industry, have made it increasingly difficult for government agencies to implement lawful orders or authorizations to intercept wire and electronic communications, as well as to implement pen register and trap-and-trace court orders or authorizations. These new technologies inadvertently undermine the ability of criminal law enforcement agencies to enforce effectively the criminal laws and protect the national security. Without the assistance and cooperation of the telecommunications industry, these new technologies will impede the ability of the government to enforce the criminal law. Accordingly, the purpose of this bill is to clarify the existing responsibilities of electronic communication services providers and private branch exchange operators, as established, for example, in 18 USC. ____ 2518(4), 3124(A), (B), to provide such assistance as necessary to ensure the ability of government agencies to implement lawful orders or authorizations to intercept communications.

Over the past twenty-five years, the working relationship between the criminal law enforcement community, particularly the Federal Bureau of Investigation as the federal government's primary criminal

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Industry Group Arguments Against The Bill

Analysis Of The FBI Proposal Regarding Digital Telephony

EXECUTIVE SUMMARY

Although the FBI has characterized its proposed "Digital Telephony" legislation as relating to the preservation of government's ability to engage in authorized wiretapping, the proposal actually requires that all communications and computer systems be designed to facilitate interception of private messages, on a concurrent and remote basis—thus imposing new engineering standards that go far beyond any existing law. As currently drafted, the proposal would impose substantial costs and create significant uncertainties, despite the absence of any clear showing that the proposed measures would be either effective or necessary. In addition, the proposal raises serious security and privacy concerns.

Beginning some time last year, the FBI has expressed concern that technological changes occurring in the telecommunications industry might have an adverse affect on the ability of law enforcement officials to conduct lawful, authorized wiretapping. For example, the FBI has raised questions about its ability to extract individual telephone calls from multiplexed signals sent over light fibers using new digital protocols. Various FBI proposals have generated concern on the part of industry that the security and privacy of electronic communications and computer systems might be weakened and that the competitiveness or technical advancement of various systems might be undercut. No one in industry challenges the FBI's right to cooperation in seeking to implement wiretaps or disagrees with the proposition that law enforcement officials need communications interception tools to do their vital job. The communications industry, network users and public interest groups are concerned with the broad sweep of the FBI's draft proposal and the potential uncertainties and costs it would impose. This memorandum explains the basis for those concerns.

Although the FBI proposal is described as relating to "digital telephony," it actually applies to all forms of communication, including all computer networks. The proposal requires that equipment be designed to give access to communications on a "concurrent" basis, regardless of the mobility of a target, in isolation from messages being exchanged by any other persons. These requests may have complex and differing application in different contexts, but they would certainly introduce additional costs and substantial uncertainties for both equipment manufacturers and everyone

Continued on page 43

FBI Arguments In Support Of The Bill

law enforcement agency, and the telecommunications industry, in response to the appropriate court orders or authorizations, has provided government agencies with timely access to the signals containing the content of communications covered by the court orders or authorizations. As a general proposition, this has involved providing the means to acquire the communication as it occurs between two individual telephone users at a remote location, not dissimilar to a call in which the two originating parties do not know that a third party is listening, and in which the third party (the criminal law enforcement agency) records the authorized and relevant calls.

Historically, and with relatively few exceptions, the telecommunications industry has provided the criminal law enforcement community with the ability to monitor and record calls:

1. at the same time as the call is transmitted to the recipient;

2. in the same form as the content of the call was transmitted through the network, notwithstanding the use by the target of custom features of the network;

3. whether stationary or mobile;

4. at the government monitoring facility;

5. without detection by the target or other subscribers; and without degrading any subscriber's service.

However, the introduction of new technology has begun to erode the ability of the government to fully effectuate interceptions, pen registers and trap-and-trace court orders or authorizations that are critical to detecting and prosecuting criminals. As technology has developed, the telecommunications industry has not always ensured the continued ability to provide the same services to the criminal law enforcement community. The telecommunications industry's introduction of certain types of new technology poses real problems for effective criminal law enforcement. Legislation is necessary to ensure that the government will be provided with this capability and capacity in the future by all providers and operators and to maintain a level playing field among competitive providers and operators in the telecommunications industry.

There have been instances in which court orders authorizing the interception of communications have not been fulfilled because of technical limitations within particular telecommunications networks. For example, as early as 1986, limited capabilities became apparent in at least one network which will only be corrected later in 1992. This technical deficiency in a new technology forced criminal law enforcement agencies to prioritize certain interceptions to the exclusion of other court orders. Accordingly, for approximately six years, there have been court orders that have not been sought by the criminal law enforcement community or executed by the telecommunications industry and, as a consequence, important criminal investigations have not been brought to fruition or have been less than efficiently concluded. This is one classic example of new technology affecting adversely the criminal law enforcement community: a microcosm of what may be expected on a nationwide basis without enactment of this legislation.

Section 1 of the bill states Congressional findings and purpose.

Section 2 is divided into seven subsections. Subsection (a) establishes as a matter of law the responsibility of electronic communication services providers and private branch exchange operators to continue to provide, within the United States, the capability and capacity for criminal law enforcement agencies to intercept wire and electronic communications when authorized by law. These subsections delineate the existing attributes of wire or electronic communication interception.

1. Concurrent with Transmission. The application for a court order to intercept telecommunications conversations or data transmissions is rarely a leisurely process. For example, on the Federal side, the development of the required affidavits, submission to the Criminal Division of the Department of Justice for approval, transmission of approval to the Assistant United States Attorney, the appearance of the Assistant before a judge to request the order and the delivery of the judge's order to the appropriate telecommunications company is frequently completed in a very short time. However, crime waits for no one and the system for approval of interceptions must and does conform with the realities of the activity that is sought to be investigated and, if appropriate, prosecuted as criminal offenses. Since time is of the essence, current law requires that service providers and operators provide the government forthwith all information, facilities and technical assistance necessary to accomplish its mission. It is critical that the telecommunications industry respond quickly to execute the court order or authorization. The ultimate problem of timeliness, however, is the real-time monitoring of the intercepted communications. As serious and potentially life-threatening criminal conduct is detected, it may be necessary to move quickly to protect innocent victims from that conduct. Accordingly, "real-time" monitoring is critical.

2. Isolated Signal and Services Used. Nearly all of the communications network is par-

Footnotes

1 Interceptions for foreign intelligence and counterintelligence purposes are not counted within the figures used here, but would likewise benefit from enactment of the legislation.

2 Whether the content is voice, facsimile, imagery (e.g. video), computer data, signalling information, or other forms of communication, does not matter; all forms of communication are intercepted.

THE DIGITAL TELEPHONY BILL

(b) The purposes of this Act are to clarify the responsibilities of providers of electronic communication services and private branch exchange operators to provide such assistance as necessary to ensure the ability of government agencies to implement lawful court orders or authorizations to intercept wire and electronic communications.

SEC. 2.

(a) Providers of electronic communication services and private branch exchange operators shall provide within the United States capability and capacity for the government to intercept wire and electronic communications when authorized by law:

(1) concurrent with the transmission of the communication to the recipient of the communication;

(2) in the signal form representing the content of the communication between the subject of the intercept and any individual with whom the subject is communicating, exclusive of any other signal representing the content of the communication between any other subscribers or users of the electronic communication services provider or private branch exchange operator, and including information on the individual calls (including origin, destination and other call set-up information), and services, systems, and features used by the subject of the interception;

(3) notwithstanding the mobility of the subject of the intercept or the use by the subject of the intercept of any features of the telecommunication system, including, but not limited to, speed-dialing or call forwarding features;

(4) at a government monitoring facility remote from the target facility and remote from the system of the electronic communication services provider or private branch exchange operator;

(5) without detection by the subject of the intercept or any subscriber; and

(6) without degradation of any subscriber's telecommunications service.

(b) Providers of electronic communication services within the public switched network, including local exchange carriers, cellular service providers, and interexchange carriers, shall comply with subsection (a) of this section within eighteen months from the date of enactment of this subsection.

(c) Providers of electronic communication services outside of the public switched network, including private branch exchange operators, shall comply with subsection **(a)** of this section within three years from the

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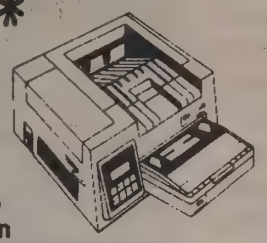

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tially "analog" at this time. In conducting an interception, for example, of a telephone conversation, the government is allowed to monitor and record criminal conversation such as a conspiracy, minimizing the acquisition of non-criminal or innocent conversation. When an electronic communication services provider or private branch exchange operator introduces a new technology—such as a digital signal—the communications are converted into a different and more efficient form for transmission, but a more difficult form to monitor during interception. The bill requires only that the provider or operator isolate and provide access to the electronic signal that represents the content of the communications of the target of the intercept[2] from the stream of electronic signals representing other communications. This provision seeks to ensure that, in the new electronic environment in which signals are mixed for transmission and separated at another switch for distribution, the government does not receive the communications of any individual other than the individuals using the target's communications point of origin and receipt; the government must remain subject to the minimization standards of 18 USC. __ 2518(5).

This provision also makes it clear that an electronic communication services provider or private branch exchange operator is not required to provide for reconversion of the isolated communication to analog or other form. The government expects that this process will be accomplished by the government.

3. Mobility and Features. Increasingly, criminal acts are being conducted or discussed over cellular telephones or by using special telecommunications features. As this mobility is introduced, the electronic communication services providers and private branch exchange operators would be required to assure the capability and capacity for criminal law enforcement agencies to continue lawful interception.

Further, this subsection makes it clear that features used by the target do not defeat the court order or authorization. For example, communications which have been addressed to the telephone number of the target, but which may have been programmed through a call-forwarding feature to another, otherwise innocent, telephone number, must be captured and made available to criminal law enforcement authorities pursuant to court order or authorization. This requirement will obviate the need for applications for authority to monitor otherwise innocent telephone numbers that receive, only intermittently, calls forwarded by the target. The effect of this provision is to further minimize monitoring of calls of innocent parties. Similarly, certain speed dialing features that mask the telephone number called by the target must be identified for criminal law enforcement investigation. The ability to consistently determine the destination of calls is critical to minimizing the monitoring of innocent calls.

4. Government Monitoring Facility. Government agencies do not normally request the use of telecommunications industry physical facilities to conduct authorized interceptions nor is it encouraged by the industry. Normally, the government leases a line from the electronic communication services provider's or private branch exchange operator's switch to another location owned or operated by the government. This minimizes the cost and intrusiveness of interceptions, which benefits the service provider or operator, as well as the government. Accordingly, the ability to monitor intercepted communications remotely is critical.

5. Without Detection. One of the reasons that governments operate their own facilities is to reduce the risk of detection of the interception, which would render the interception worthless. At the present time, the existence of an interception is unknown to any subscriber and is not detectable by the target, notwithstanding folklore and spy novels. This provision merely ensures that the secrecy of effective interceptions will be maintained.

6. Without Degradation. Maintaining the quality of the telephone network is in the interest of the government, the industry and the public. Presently, the existence of an interception has no effect on the quality of the service provided by any network to the target or any subscriber. This provision ensures that the quality of the network will continue to be uncompromised. Absent the assistance delineated by this legislation, the execution of court orders and authorizations by the government could well disrupt service of the newer technological systems, a result that this legislation seeks to avoid.

Subsection (b) provides that electronic communication services providers and private branch exchange operators within the "public switched network" must be in compliance with the minimum intercept attributes within eighteen months after enactment. Thereafter, new technologies must continue to meet these minimum attributes.

Subsection (c) provides that electronic communication service providers and private branch exchange operators that are not within the "public switched network" must be in compliance with the minimum intercept attributes within eighteen months after enactment. Thereafter, new technologies must continue to meet these minimum attributes.

THE DIGITAL TELEPHONY BILL

date of enactment of the subsection.

(d) The Attorney General, after consultation with the Department of Commerce, the Small Business Administration and Federal Communications Commission, as appropriate, may except from the application of subsections **(a)**, **(b)** and **(c)** of this section classes and types of providers of electronic communication services and private branch exchange operators. The Attorney General may waive the application of subsections **(a)**, **(b)** and **(c)** of this section at the request of any provider of electronic communication services or private branch exchange operator.

(e) The Attorney General shall have exclusive authority to enforce the provisions of subsections **(a)**, **(b)** and **(c)** of this section. The Attorney General may apply to the appropriate United States District Court for an order restraining or enjoining any violation of subsection **(a)**, **(b)** or **(c)** of this section. The District Court shall have jurisdiction to restrain and enjoin violations of subsection **(a)** of this section.

(f) Any person who willfully violates any provision of subsection **(a)** of this section shall be subject to a civil penalty of $10,000 per day for each day in violation. The Attorney General may file a civil action in the appropriate United States District Court to collect, and the United States District Courts shall have jurisdiction to impose, such fines.

(g) Definitions—As used in subsections **(a)** through **(f)** of this section—

(1) 'provider of electronic communication service' or 'private branch exchange operator' means any service or operator which provides to users thereof the ability to send or receive wire or electronic communication, as those terms are defined in subsections 2510(1) and 2510(12) of Title 18, United States Code, respectively, but does not include the government of the United States or any agency thereof;

(2) 'communication' means any wire or electronic communication, as defined in subsections 2510(1) and 2510(12) of Title 18, United States Code;

(3) 'intercept' shall have the same meaning as set forth in section 2510(4) of Title 18, United States Code; and

(4) 'government' means the Government of the United States and any agency or instrumentality thereof, any state or political subdivision thereof, the District of Columbia, and any commonwealth, territory or possession of the United States. ■

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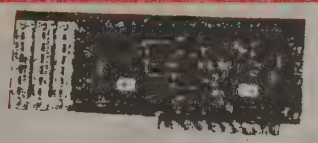

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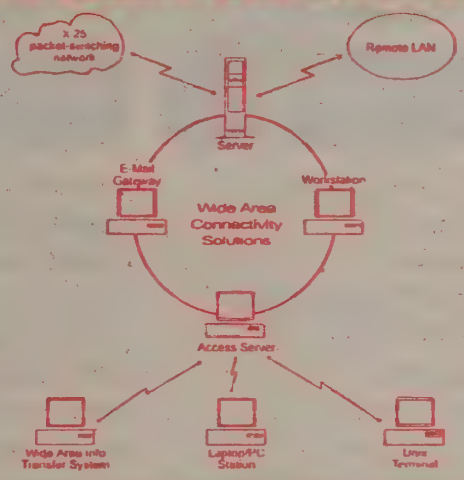

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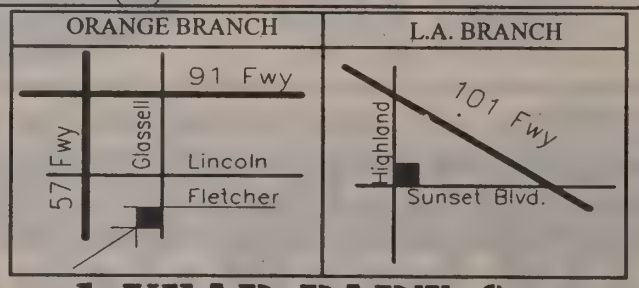

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Industry Group Arguments Against The Bill

who offers messaging service to others. These days, the list of those covered by the proposal ("providers of electronic communications services" and "PBX owners") includes just about everyone. Because the wiretap statute was written to protect the privacy of a broad range of communications types, and because of the growing interdependence and intermixing of all forms of communications, the statutory language of the FBI proposal could turn out to require redesign or expensive alteration of:

(1) public electronic mail systems, like those offered by MCI, AT&T and a host of other companies and individuals;

INDUSTRY: "Although current wiretap law requires 'minimization' and use of wiretaps as a 'last resort,' the proposal imposes obligations on all communications systems as if preserving the ability to wiretap at any point should be the system designer's highest priority."

(2) all telephone switches and the sophisticated equipment used by long distance carriers;

(3) software used by online information services like Prodigy, GEnie, CompuServe, America Online and many others;

(4) local area networks, linking all kinds of computers, operated by small businesses, colleges and universities and many other types of organizations, including links into these systems from other homes and offices;

(5) PBXs owned by small and large businesses;

(6) high speed data networks connecting workstations with mainframes and supercomputers, as well as those carrying messaging traffic across the "Internet";

(7) radio-based and cellular communications systems, including pocket telephones and computers with radio-based modems;

(8) the thousands of small personal computers owned by businesses, hobbyists, local governments, and political organizations that communicate with others via computer bulletin boards;

(9) private metropolitan wide area communications systems used by businesses such as large banks;

(10) satellite uplink and downlink equipment supporting radio and television transmissions and other communications; and

(11) air-to-ground equipment serving general aviation and commercial aircraft.

We are becoming an information economy and, accordingly, imposing mandatory system design requirements on all those involved in the transfer of information has an impact on large numbers of people and most sectors of the economy.

There is no doubt that evolving technologies will challenge law enforcement officials and industry alike. We need effective law enforcement tools, as well as appropriate levels of privacy and security in communications and computer systems. The goals underlying the FBI proposal are valid and important ones. But they may well be best achieved without additional legislation. Industry has historically cooperated with law enforcement and is presently engaged in ongoing discussions to identify specific problems and concrete solutions. This cooperative process will lead to needed exchanges of technical information, better understanding on all sides of the real policy issues, and better, more cost-effective solutions. Congress should reject the FBI proposal and encourage continuing discussions that will lead to more specific identification of any problems and to more concrete, cost-effective solutions.

Analysis of the FBI Proposal Regarding Digital Telephony

What is Proposed? The most recent proposal imposes obligations to provide various generic interception "capabilities and capacities" and empowers the Attorney General to grant exemptions, after consultation with the Federal Communications Commission, the Department of Commerce and the Small Business Administration. Any person who manufactures equipment or provides a service that failed to comply with the broad and vague requirements of the proposed statute would be subject to a civil penalty of $10,000 per day.

How Serious is the Problem? The predicate for the FBI proposal is that advances in technology have made it more difficult for the government to intercept particular telephone conversations in the course of legally-authorized wiretapping. There have been few actual problems, historically, in executing authorized wiretaps. None have stemmed from

FBI Arguments In Support Of The Bill

Subsection (d) provides that the Attorney General may grant exceptions to the affirmative requirements of subsection (a), as well as the implementation deadlines of subsections (b) and (c). In considering any request for exception, the Attorney General will consult with Federal Communications Commission, the Small Business Administration and the Department of Commerce, as appropriate. Accordingly, the Attorney General has the authority to except, for example, whole classes, categories or types of private branch exchange operators where no serious criminal law enforcement problems are likely to arise.

This subsection also permits the Attorney General to waive the requirements of subsections (a), (b) and (c) on application by an electronic communication services provider or private branch exchange operator. Accordingly, if a particular company can not comply with one or more of the requirements of subsection (a), or needs time additional to that permitted under subsections (b) or (c), the Attorney General may grant an appropriate waiver.

Subsection (e) provides that the Attorney General has exclusive authority to enforce the provisions of the bill. While a number of States have authority to seek and execute interception orders, they will be required to seek the assistance of the Attorney General if enforcement of this legislation is required. This section also provides for injunctive relief from violations of the provisions of the bill.

Subsection (f) provides for enforcement of the provisions of the bill through imposition of civil fines against any company that is not excepted from the provisions of the bill, does not acquire a waiver of the provisions of the bill, and fails to meet the requirements of subsection (a) after the effective dates set out in subsection (b) or (c), as appropriate. A fine of up to $10,000 per day for each day in violation may be levied; for most companies in the telecommunications industry this amount is sufficient to ensure that compliance will be forthcoming. Although this provision is not expected to be used, it is critical to ensure that compliance with the provisions of the bill will occur after the effective dates of the requirements of subsection (a).

Subsection (g) carries forward a number of definitions from the current provisions for the interception of wire or electronic communications under "Title III." The definition of "government" that is currently in use includes all States, territories and possessions of the United States, as well as the United States, is made applicable to the bill. ■

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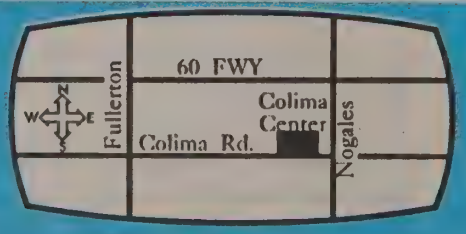

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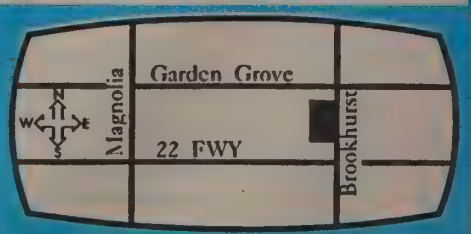

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Industry Group Arguments Against The Bill

characteristics of communications equipment design (as distinct from limitations in equipment capacity). On the other hand, it is clear that, over time, changes in the technologies used for communications will require the FBI (and the communications industry as a whole) to use new techniques and to acquire additional equipment and skills. Some developments, such as encryption,

INDUSTRY: "Any small business that installs its own local PBX system for forwarding calls from customers could be required to replace its equipment with new switches that meet the law's requirements. If current online information services do not track the 'services' and 'features' used by those who send messages through their electronic mail channels, then expensive modifications might be mandated."

may make interception (or, at least, understanding the contents of what has been "intercepted") much more difficult—but in ways that are not even addressed and cannot be fixed by the proposed legislation. (It is difficult to evaluate the FBI argument that it would have asked for more interceptions if some technological barriers had not existed. There have always been and will always be some technological barriers to interception of the content of communications the participants seek to protect.)

Existing law requires all companies providing electronic communications services to cooperate fully with lawful requests from the FBI and other law enforcement officials—and there is no history of any general failure to provide such cooperation. Existing law also contemplates that the government will bear the costs imposed by the government's requests for access to communications. (As noted below, the proposal does not specifically extend that principle.) There is no showing that the government lacks the financial resources to modernize its communications equipment or to fund the costs of lawful interceptions that it initiates. Since the total number of content wiretaps in 1991 authorized by Federal and State courts was only 856 taps (and almost 60% of these were at the State level, 356 Federal versus 500 State), and since the call-set-up or pen register tap orders for 1991 at the Federal level were only 2,445, (thus, implying a national total under 7,000), it appears the costs may be better targeted to the specific lines or ports necessary, instead of burdening all lines or ports existing in the network. See Administrative Office of the US Courts "Report on Applications For Orders Authorizing or Approving the Interception of Wire, Oral, or Electronics Communications (Wiretap Report)" for the period January 1, 1991 to December 31, 1991 and letter from the Assistant Attorney General W. Lee Rawls to the Honorable Jack Brooks, Chairman of the Committee on the Judiciary of the United States House of Representatives, dated April 23, 1992, providing the annual report of the Attorney General on pen register orders. By comparison, there were over 138 million access lines as of December 31, 1990 according to the United States Telephone Association and this does not include ports used for cellular or many other network accesses. (We understand the current FBI budget provides for $9 million for new digital telephony interception equipment.) Thus, although there is valid reason to be concerned that changes in technology will challenge law enforcement agencies to find and adopt new techniques, there is no immediate crisis requiring swift action.

Broad Scope of the Current Proposal. The FBI proposal covers all providers of "electronic communications services" and all "private branch exchange operators." These days, that means just about everybody, including every business that has its own phone switch and every company that operates its own local or wide area computer network. The Electronic Communications Privacy Act defines "electronic communications services" to include electronic mail, file transfers over a Local Area Network ("LAN") and, indeed, every form of transmission of a message other than voice telephone calls (which are also covered by the proposal as "wire" communications), and sound waves in the open air (the only form of communication not covered by the proposal). See 18 USC. 2510(12),(15). All "providers" of such services would be affirmatively required, within three years, to provide law enforcement officials with the "capability and capacity" to intercept communications. This capability would have to be provided "concurrently" with the communication, without detection (apparently without regard to the target of the wiretap possibly employing sophisticated wiretap detection capabilities), exclusive of any communications between other parties, regardless of the mobility of the target, and without degradation of service.

These absolute requirements might not be capable of being met, as a technical matter, in some contexts, regardless of costs. The proposal is redundant, in the sense that it requires the ability to access communications at all points during their transmission, even though access at one point is all that is needed in any given circumstance. Although current wiretap law requires "minimization" and use of wiretaps as a "last resort," the proposal imposes obligations on all communications systems as if preserving the ability to wiretap at any point should be the system designer's highest priority. The application of these requirements would have substantially different costs and other implications depending upon where in a communications pathway they were actually applied. In any event, they dramatically expand the nature and reach of current law—which requires cooperation but does not grant the government a right to redesign the communications network or the equipment used by large numbers of businesses.

The FBI has defended its proposal on the ground that it is only seeking to "preserve the status quo," by preventing changes in technology from taking away capabilities that Congress meant to assure when it passed the 1968 and 1986 wiretap statutes. But that mischaracterizes the "status quo." The current wiretap statutes take the communications networks as they find them and do not require any provider of communications service to redesign the system, or to refrain from using any particular technology, solely on the ground that such a technology would make interception more difficult. While there may well be sound reasons for all concerned to cooperate to seek to preserve for the government a practical ability to engage in authorized wiretapping, there is simply no existing legal authority for law enforcement officials to mandate the use of particular technologies and, thus, contrary to the claims made by the FBI, the proposal does not simply maintain the status quo, but greatly expands the jurisdiction of the Attorney General and would represent a giant step beyond current law and congressional intent going back to 1968.

While the proposal imposes substantial uncertainties, to be discussed below, there is

Industry Group Arguments Against The Bill

no question that, as drafted, it would have an extremely broad reach. As a result, it could complicate the development of various new technologies. Even though the language of the proposal would extend to cable information systems and Automated Teller Machines ("ATM"), the FBI has stressed in its proposal that various systems might be exempted by executive action. But the exemption authority is vague and standardless—so the net effect is that every system provider has to worry on a continuing basis about whether or not its system is covered. Moreover, the proposal is clearly designed to cover any system facilitating two-way conversation, regardless of the size of the communications service provider. In consequence, any small business that installs its own local PBX system for forwarding calls from customers could be required to replace its equipment with new switches that meet the law's requirements. If current online information services do not track the "services" and "features" used by those who send messages through their electronic mail channels, then expensive modifications might be mandated. Because these electronic mail systems are all being joined together, and some function as links that forward messages between other systems, all might have to be designed to allow "real time" interception by retransmission to a remote site—even though delayed searches of stored files would seem to make a lot more sense in the context of electronic mail.

INDUSTRY: "Although the FBI has characterized its proposed 'Digital Telephony' legislation as relating to the preservation of government's ability to engage in authorized wiretapping, the proposal actually requires that all communications and computer systems be designed to facilitate interception of private messages, on a concurrent and remote basis—thus imposing new engineering standards that go far beyond any existing law."

Costs Likely to be Imposed by the Proposal. The costs imposed by this proposal would be passed on to consumers and to all subscribers to electronic communications services. The total costs, including costs imposed by its potentially disruptive impact on planning for new computer and communication technologies, cannot be fully assessed—but would clearly be very substantial. In its report on the FBI's proposal, the General Accounting Office ("GAO"), page 1, stated: "[N]either the FBI nor the telecommunications industry has systematically identified the alternatives, or evaluated their costs, benefits, or feasibility." And further at page 4 of the GAO Report:

[T]he [FBI's] May proposal does not address what the telecommunications industry would need to do to be in full compliance with the proposal in the event it is enacted, the meaning of certain technical terms, or who would pay for the cost of wiretapping solutions.

The proposal mandates compliance with very broadly stated functional standards and contemplates that exemptions (available from the Attorney General, without the benefit of any specific standards or criteria) will be granted only after this broad new governmental authority has been enacted into law. The most recent proposal assumes that the costs of compliance will become a cost of doing business imposed on all communications service providers—and passed on to telephone ratepayers and other subscribers to electronic communications services. (The current law's provision that the government will pay reasonable expenses incurred in cooperating with a specific request for interception have not been expressly applied to this new requirement to "provide the capability and capacity" to respond to such requests.) Communication service providers and computer equipment manufacturers could suffer major losses as a result of delays, mandatory redesigns, and even prohibition of certain technological options. There has been no opportunity as yet to compare (1) the costs the FBI would incur to modernize its approach to interception (especially given the data on the small number of taps performed annually) with (2) the costs that would be incurred by consumers as a result of mandatory limitations on new technology design applied to all technologies nationwide.

Uncertainties Created by the Proposal. By attempting to establish open-ended duties, broadly defined, in statutory language, the current proposal creates substantial uncertainties and could cause controversy to supplant cooperation. For example, although current interception orders predominantly relate to voice communications, the draft proposal covers all forms of communication. This approach could sweep up systems ranging from the cellular pager to the high-speed network designed to transfer digital data between supercomputers. It raises a wide variety of questions:

- What exactly are the boundaries of the "public switched network" to which the proposal refers?
- On what basis would the Attorney General choose, or be required, to provide exemptions?
- How would the proposal affect systems that regularly encode messages at the point of origin?
- Does the required provision of capacity to intercept "concurrent with the transmission to the recipient" mean that an electronic mail or voice mail or facsimile mail system must be designed to signal the system operator every time a message from a target of an investigation is accessed by the person to whom that message might have been addressed?
- Will it be technically feasible to detect and separate just those parts of a communication signal coming from a particular residence or other source, that "exclusively" represent the content coming from a particular individual?
- What is meant by the new, broad requirement that the government be told what "services, systems, and features" have been used by the subject of the interception?
- Does the required provision of interception capacity "notwithstanding ... the use by the subject ... of any features of the ... system" have the effect of requiring the system provider to offer to defeat any encryption mechanism it may provide to subscribers?
- Does the requirement to provide interception despite the target's mobility mean that systems that inherently allow users to send and receive from multiple points, without notice, cannot be used at all?
- Will it be physically possible or economically feasible to prevent "degradation of services" if the functional requirement for real time tracking of any target means that some central database must be checked by the service provider's computers every time a communication is made?

We don't know the answers to these questions, despite their importance. More importantly, the answers to key policy questions

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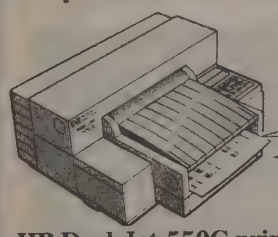

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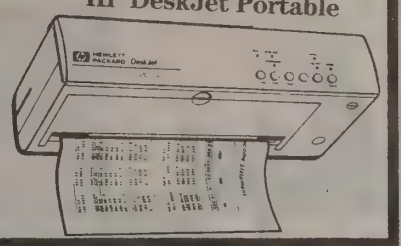

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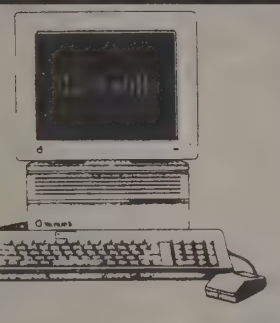

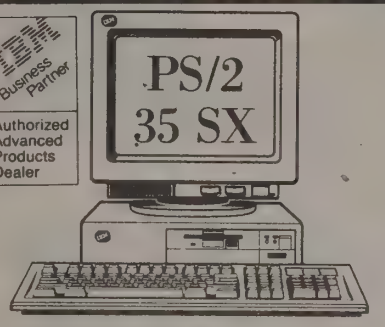

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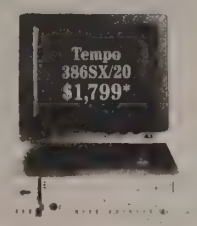

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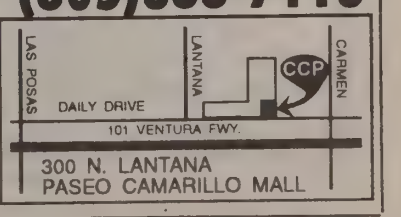

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Industry Group Arguments Against The Bill

may differ substantially depending on what particular technology and interception need (and minimization goal) is being addressed. And we don't even know by what means providers of electronic communications services and designers and users of electronic communications and computing equipment will find out how the requirements will be applied to their systems. In short, the FBI's proposal, as currently drafted, may generate new and unnecessary controversy, despite its legitimate goals, by attacking perceived problems at the wrong level of generality.

Threat to security and privacy. Ironically, in addition to creating uncertainty and imposing costs, the proposal would itself create new and serious security risks and undermine the privacy of electronic communications. If electronic communications service providers must design their systems to allow and ensure FBI access, then the resulting mandatory "back doors" may become known to and be exploited by criminals. Business is currently attempting to achieve greater security in its communications, to counter the threats posed by unauthorized access, computer viruses, and electronic theft. A proposal the FBI seeks to justify in terms of law enforcement could well have the effect of facilitating violations of law and reducing or preventing effective security measures.

Threat to International Trade and Security Interests. As drafted, the proposal appears to threaten US interests in international trade and competitiveness. Potential purchasers abroad may not buy products or systems that they know have a "trap door" the United States Government can easily open. If US manufacturers of communications systems and equipment and computer software have to go through a bureaucratic certification or clearance process that is not applicable to their foreign competitors, their race to the market with new technologies will be slowed and their products and designs will be disadvantaged.

Legitimate Law Enforcement Interests and Concerns Can and Should be Served. There is no doubt that authorized wiretapping is an important weapon properly used by the FBI to fight serious crime. And there is general agreement among communications service providers, and the makers of communications and computing equipment, that the FBI is entitled to full cooperation in its efforts to exercise the powers granted to it in the wiretap statute. If new technologies require changes in police tactics, then accommodations may be needed on all sides to make sure that new tactics that do not threaten the effectiveness or safety of law enforcement (or unreasonably threaten privacy interests) are available. The FBI proposal has served a valuable purpose in drawing attention to the need for adequate planning and redoubled cooperative efforts.

It is Too Soon to Tell Whether Legislation will be Necessary. Despite the good intentions underlying the FBI proposal, there is certainly no demonstrated need to hamper US technological advances, harm the competitiveness of the US communications or computer industries, or hinder efforts by business to increase computer security, just to make sure that law enforcement officials can continue indefinitely to use the same equipment and procedures that were appropriate for an earlier technology. There has as yet been no clear showing that the design of new technologies will not permit reasonable, affordable and effective techniques to be used for authorized interception. There has been no showing that the industry will not or cannot cooperate fully, share technical information under appropriate protections, and even design and supply new equipment at reasonable cost, insofar as these steps prove necessary for the FBI to accomplish its mission. There has been no clear showing that any capacity limitations could not readily be remedied with the provision of adequate financing for government law enforcement operations.

The Current Proposal is Clearly Premature, in Light of Active Ongoing Efforts by Industry to Identify and Solve any Serious Problems. An ad hoc coalition of interested parties has joined together to study the issues posed by the FBI's proposal and to begin discussions involving various business interests, public interest groups, the law enforcement community, legislative staff, and representatives of the Administration. All involved recognize that the FBI is entitled to have adequate tools to fulfill its law enforcement objectives. For its part, the FBI has recognized the value of industry cooperation and the need for a more robust exchange of technical information. Once the technical issues come into focus, particular policy issues may be ripe for decision, in a context in which the costs and implications of such decisions for trade, security and privacy concerns will be much more clear. Technical Working Groups representing both the telephone companies and the computer industry are hard at work—but the issues are complex and even the first stage of identifying serious potential problems for law enforcement will take some time. Consideration of proposed solutions should await the results of these detailed and technical discussions.

CONCLUSION

As the broad collaboration that accompanied consideration of the 1986 amendments to the wiretap statute showed, the public interest in sound law enforcement, and public expectations of privacy and security, are best served by encouraging a constructive exchange of views among industry, concerned citizens and government, before any new legislation is enacted. Congress should reject the FBI proposal and encourage continuing discussions that will lead to more specific identification of any problems and to concrete, cost-effective solutions.

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The Sharp PC-3000: A Palmtop You Can Type On

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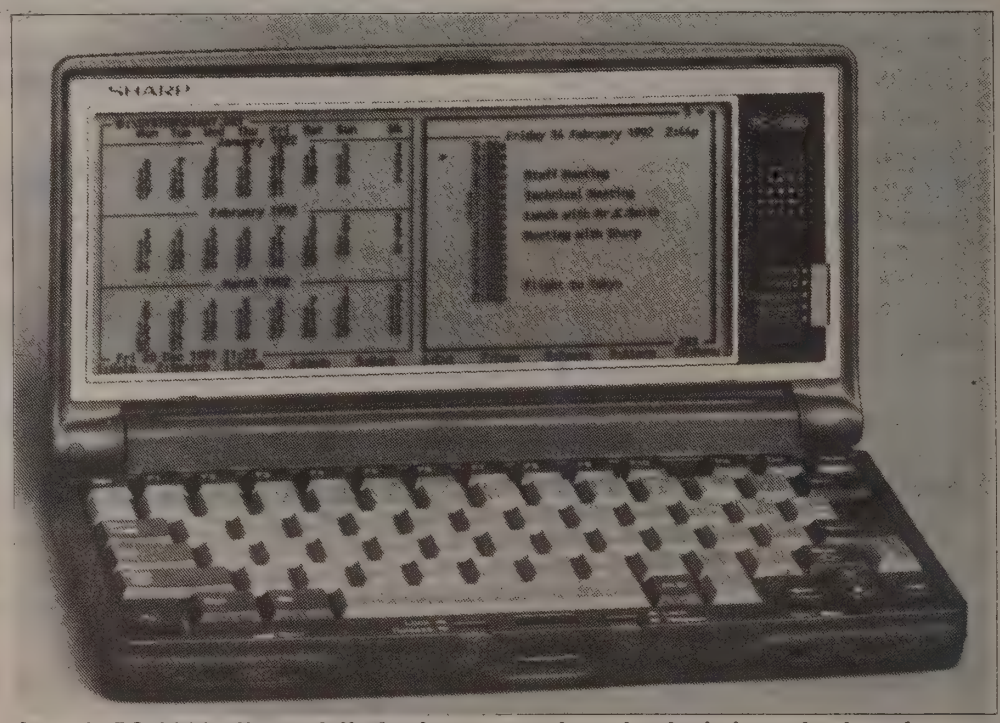
BY MITSU HADEISHI

Last month I wrote about the HP 95LX, the most popular of a growing number of DOS-compatible palmtop computers. The 95LX, however, does not have a full-size screen, and the small keyboard makes it difficult to touch-type.

There are, however, a number of somewhat larger, more full-functioned palmtops which share the 95LX's long battery life and portability, but include a full 25 x 80 character screen and much larger keyboards. One of the first machines of this class to be introduced in the United States was the Sharp PC-3000, initially available only in Asia and a recent arrival here. A number of clones of this machine have already hit the market: the Memorex Commuter Computer and the Zeos Palmtop PC are notable examples. This column will focus, however, on the PC-3000.



Sharp's PC-3000 offers a full-sized screen and a selectively large keyboard.

The Sharp PC-3000 includes 1MB of RAM installed. It retails for $995, and comes with DOS 3.3, a suite of built-in applications (including an address book, a scheduler, a text editor, a simple spreadsheet, and LapLink) all in ROM, as well as a serial and a parallel port (with the necessary cables, a convenience that's missing from the standard 95LX package). The unit measures 8.7" x 4.4" x 1", and weighs just over 1 lb. It is powered by three AA batteries which are supposed to last for approximately one hundred hours of continuous use (I have not been able to verify this claim). The unit also comes with two PCMCIA 1.0 slots; this allows you to have an extended RAM or Flash RAM card as well as a ROM application card plugged in at the same time.

The unit is physically quite nicely designed, though I would have preferred a different exterior color than its standard battleship grey. The keyboard is not full-size, but large enough to touch-type on. Although the keys are much easier to use than those on much smaller machines such as the 95LX, the arrangement is still somewhat cramped.

The display is relatively easy to read, though not as clear, ironically, as that of the less expensive Sharp Wizard series. This is due partially to the display's somewhat low contrast and the fact that in order to cram twenty-five lines of text onto one display, the letters have been made somewhat smaller than they otherwise might be. The convenience of being able to run DOS applications unmodified makes up for this problem, though I would have liked to see an alternate large-character mode, sacrificing screen space for readability at a distance. The unit will also display graphics in a 640 x 200 pixel mode.

The built-in functions are implemented from a pop-up shell, which can be invoked at any time via a hot-key. As with the 95LX, however, you cannot run a built-in application while a normal DOS application is already running. Nonetheless, the setup is better designed than the 95LX's; it is generally easier to switch between applications, and the built-in applications will automatically start up from where you last saved your work. (Not included in the package of built-in programs, however, was the typically ubiquitous World Time function.)

The address book, scheduler, to-do list, and text editor are all quite functional, though without frills. The built-in worksheet provides a subset of Lotus 1-2-3 functionality; it will load .WKS and .WK1 files created by Lotus 1-2-3, though it does not have all of 1-2-3's features. In particular, there is no graphing function, and no support for macros. However, the PC-3000 does provide a full set of calculation functions and basic scientific and financial functions as well, and

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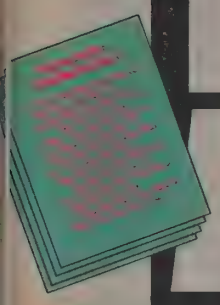

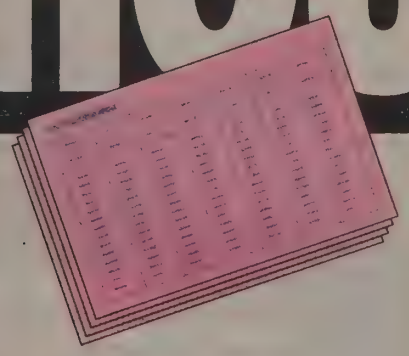

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thus is an adequate tool for basic computations. The Lotus compatibility makes it easier to transfer worksheets to and from your desktop PC. The 95LX's full-function Lotus 1-2-3 release 2.2 is, of course, much more capable from a functionality standpoint, though it is limited in terms of screen space.

LapLink is included, although I was unable to get it to install on my PC. A "remote installation" is supposed to allow you to install LapLink on a remote PC via the serial port. The two machines were connected, and the "bootstrap" was sent across, but my PC halted with a divide overflow error after the initial step. I tried several configurations, including booting from vanilla DOS to get it to work, all with no success.

As I mentioned above, the PC-3000 has both serial and parallel ports, and quite conveniently cables are included. Use of LapLink, however, requires an optional LapLink cable (which can be purchased for about $35). The machine also includes an expansion bus connector, allowing the attachment of external floppy and even hard disk drives; it also features two PCMCIA 1.0 slots which can take industry-standard memory or ROM cards—the memory cards typically hold up to 2MB each (though a Stacker-equipped card can hold about 4MB of information).

Overall, the Sharp PC-3000 is a basic workhorse palmtop computer with enough horsepower to run your basic spreadsheet and text editing applications. The display and keyboard are large enough to run standard DOS applications without modification. With a list price of $995, however, the unit is a bit pricey; competing units selling for lower prices may well be better value for the money (in particular, the Zeos Palmtop PC sells for $595 and has a similar set of hardware specifications).

In case you're wondering from whom you can actually buy some of the hardware I talk about, I'd like to mention EduCALC, a store based in Southern California that specializes in palmtop computers and calculators. Their primary specialty is the HP line, but they also carry Sharp, Casio, Psion, Poqet, and other palmtop computers. EduCALC is one of the few places, for example, that carry the PC-3000.

INEXPENSIVE PEN INPUT SYSTEMS

The Inforite Corporation has announced an inexpensive pen-input system that uses a pressure-sensitive technology, meaning that you do not need to use a special electronic stylus. The MP100 will attach to a standard RS-232 port; it comes with Windows software and can be used in conjunction with Windows for Pens. The MP200 is intended primarily for point-of-sale and other electronic signature capture applications. Both models retail for $295.

Mouse Systems has announced an electronic stylus-based pen input system called PenMate. PenMate retails for $349, is compatible with Windows for Pens, and will attach to a PC through the RS-232 port.

PCMCIA NEWS

Two companies have recently announced 14.4kbps high-speed PCMCIA fax/modems.

Dr. Neuhaus, a European electronics manufacturer, has announced the Fury Card 14.4 data/fax/voice modem card which supports the PCMCIA 2.0 standard. The modem is 5mm thick and the size of a credit card, and will fit into any PCMCIA 2.0-compatible slot. The modem also supports V.42bis data compression and V.42 error correction.

Interestingly, this modem also supports two-way voice messaging using Dr. Neuhaus's Voice LTD software. Voice LTD is bundled with the Fury Card 14.4, and includes customized Windows audio drivers intended to support voice messaging. I'm not sure exactly what the point is, since few existing palmtop machines have the resources to run Windows, much less store voice messages in their limited RAM or Flash RAM storage. However, new sub-sub-notebooks are now arriving which will support the PCMCIA 2.0 standard and will be quite capable of running Windows (as well as having storage capacity of 20Mb and up).

Megahertz Corporation has also announced the Megahertz CC3144FM Notebook FAX/Modem, a 14.4 kbps v.32bis/v.42bis PCMCIA 2.0 modem. Unique to this modem card is a special connector which allows the card to be directly connected to a phone line without the need for an external "podule" to connect the unit to a phone line. The card is designed to include support for cellular operation.

DIGITAL AIRWAVES

Solectek Corporation has introduced a wireless network adapter that plugs into an IBM-compatible computer via its parallel port, and gives the machine access to LANs via a wireless connection. Services available via the wireless adapter include all of the standard LAN services, including file and printer sharing. It will retail for $899, including adapter, power supply, and installation software. Supported network operating systems include Novell NetWare, NetWare Lite, Microsoft LAN Manager, Banyan Vines, DEC Pathworks, 3Com 3+, and Artisoft LANtastic. A PCMCIA 2.0 card version will be available as well, allowing portable wireless LAN access within an office environment.

Ex Machina, Inc., has announced Notify!, a messaging system intended to give existing applications the ability to send messages to users connected to computer and paging wireless messaging networks. A variety of applications vendors are adding Notify! support to their products, including WordPerfect Corporation, Microsoft, Claris, and Symantec. This will allow standard electronic mail and other office communications systems to deliver messages to users in the field, wherever they happen to be, via a paging or other similar wireless messaging network. Support for DOS, Windows 3.1, and Macintosh clients is available.

FLASH DISK

As I mentioned in an earlier column, as it improves in speed and comes down in cost, Flash RAM could well replace hard disks someday as the medium of choice for long-term mass storage.

Computer Modules, Inc. has already introduced a product called Flash Disk, a solid-state Flash RAM-based subsystem which uses standard Intel Flash SIMM modules and has a capacity of 1–32MB. The Flash Disk is a standard ISA bus board, capable of data transfer rates of up to 2MB per second for reading.

The current drawback to flash RAM as a replacement to hard disk technology is that it is still more expensive per megabyte, and it is somewhat slow to erase; this unit will write to blank memory at a rate of 128K/sec, but if it has to erase as well, it slows to 40K/sec. However, the read speed is close to that of RAM, much faster than most standard hard disks; as the technology improves, price will inevitably continue to fall, and performance will rise. Intel has already announced much higher-density Flash RAM chips, so prices on this technology will continue to see significant drops, most likely faster than the drops in price for hard disk subsystems as time passes. The Flash Disk is appropriate for applications which involve infrequent writes and frequent reads. ■

RESOURCES:

AirLAN
Solectek Corporation
(619)457-4490

Digital Book System-1
Franklin Electronic Publishers, Inc.
(609) 261-4800

EduCALC
27953 Cabot Rd.
Laguna Niguel, CA 92677
(800)677-7001

Flash Disk
Computer Modules, Inc.
2350A Walsh Ave.
Santa Clara, CA 95051
(408)496-1881

Fury Card 14.4 data/fax/voice modem
Dr. Neuhaus
contact Remco Treffkorn
(408)685-0928

Inforite MP Series Writing Pads
Inforite Corporation
1670 S. Amphlett Blvd., Ste. 201
San Mateo, CA 94402

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Megahertz Corporation
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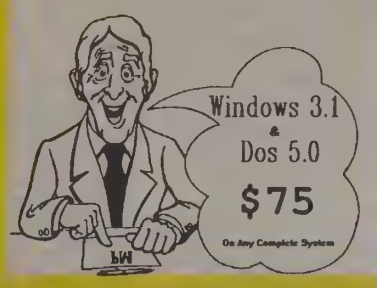

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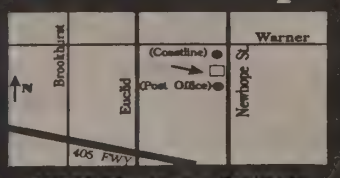

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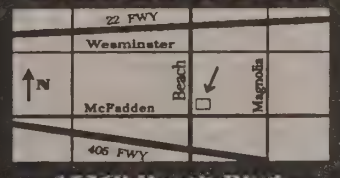

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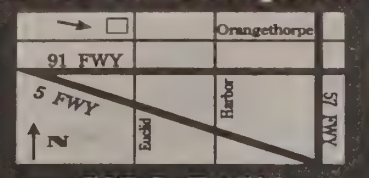

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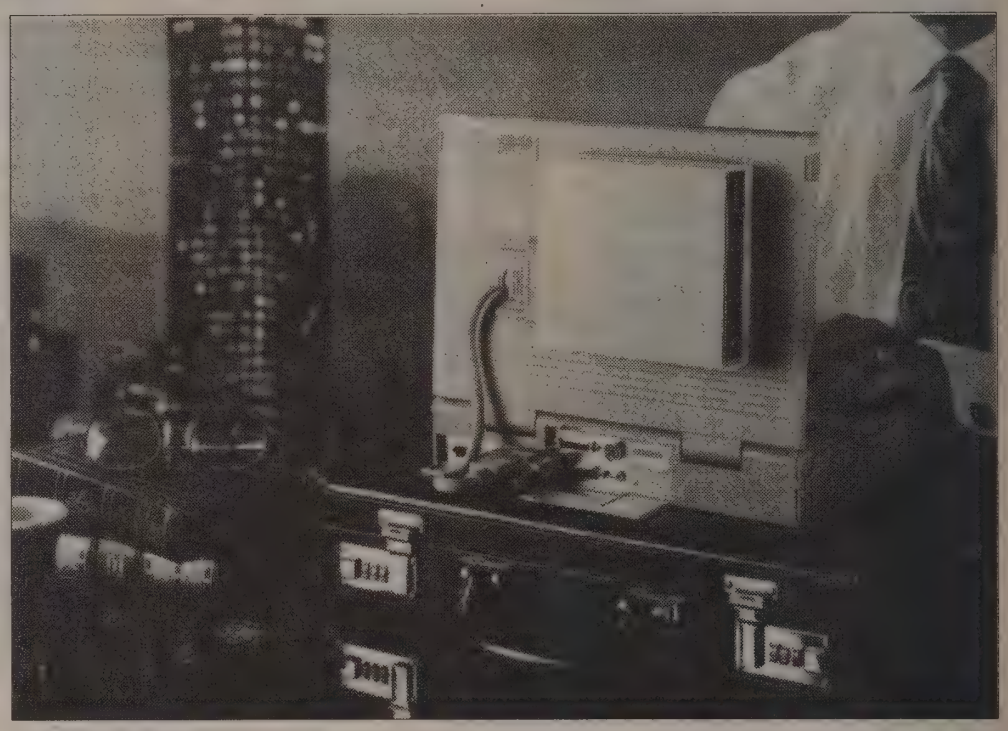
A Hard Drive For Portables

This Portable, Battery-Operated Hard Drive Provides A Wide Range Of Uses

BY ED KAHN

The parallel port is becoming increasingly important as a way into the inner workings of a computer. In the not-too-distant past, most devices required the addition of an expansion card—an impossible situation on most portables—or the use of the serial port. Over the past few years, more and more products have begun to utilize the power of the parallel port for getting data in and out of computers. This month, we are highlighting the Traveler-HD, a portable, battery-operated hard drive that connects through the parallel port.



The usefulness of this device is broad. Not only can you expand the capacity of an older portable that either has no hard drive or a pitifully small one, but you can use it to back up data, transport files without carrying a whole computer, and, in a corporate setting, keep test files on a portable drive that can be moved from computer to computer.

The market has been flooded with portable drives, but I chose this one to highlight because it seems particularly well suited to use with portables. First, it is small—occupying roughly the area of a 5.25" floppy disk and a little over an inch thick. I tested a 20MB drive that weighed 1 1/2 lbs. Secondly, it is battery-operated. The Traveler-HD comes with rechargeable batteries that run up to five hours without recharging. An AC adapter unit comes with the drive. If convenient, you can plug this in and never have to worry about recharging the unit again; but if your needs require true portability, then you can begin your work session with a fully charged battery and actually extend the time your portable will work without recharging.

Battery life on a portable is significantly affected by the number of times you access the hard drive. If you transfer your work files onto the Traveler-HD, you will conserve the battery power of your portable and perhaps double the time it will run before needing to be recharged.

Although the Traveler-HD works equally well on desktop machines, it is clearly designed for use with portables. This drive lets users easily transfer files between laptops and desktop machines. If you have only a few files to transfer, there are less expensive ways of doing the job, but if you have a large amount of data to carry back and forth, this may be the solution. It is a good deal easier than carrying a portable between locations.

A final application that needs highlighting is its use with some of the palmtop machines. These tiny computers typically do not provide disk storage because of their small size. This drive, however, gets around this limitation. Specific instructions are included for use with the Poqet and Atari palmtops. I did not try the hard drive with these machines, but I have no reason to doubt that it will work flawlessly with them. The installation disk has a subdirectory devoted to files for installation on the Atari Portfolio.

Installation on a laptop is as easy as the advertisements boast. You plug a cable between the computer's parallel port and the designated port on the Traveler-HD. If you are using a printer, it can be plugged into the port on the back of the portable drive. The use of the parallel port for the hard drive in no way diminishes its usefulness as a route to the printer. Both the hard drive and the printer can be used at the same time.

After making the hardware connection, you put the installation disk that comes with the package into the floppy drive and type "install." It makes a change to your config.sys file and asks you which drive you use to boot the system. Additionally, it asks you how long you want to set for the hard disk to wait before shutting down if it is not accessed. You are instructed about the options and given default values. If you do no more than hit return a couple of times, installation will be complete. When you reset the computer, the hard drive will be available. The whole job took me less than five minutes!

A set of Velcro pads lets you attach the hard drive to any surface you like. I found it convenient to set it on my desk, but if I were using it on an airplane, I would surely attach it to the top of my notebook system.

Memory Products and More, the company that markets this drive, has introduced a whole range of hard drives—from the 20MB drive that I tested, up to a 500MB drive. The largest battery-operated drive, however, is 130MB. AC-powered drives range from 80MB to 500MB and weigh 4 lbs. Prices vary accordingly. The least expensive battery-operated model sells for $340. The Traveler-AC 500MB model goes for $2299.

While these drives are not inexpensive, if they do the job you need done, they are well worth the price. Performance was flawless and this product fills a niche that is otherwise empty. ■

RESOURCES:

Traveler-HD, $340
Memory Products and More
15285 Alton Pkwy.,
Suite 200
Irvine, CA 92718
1-800-222-8861

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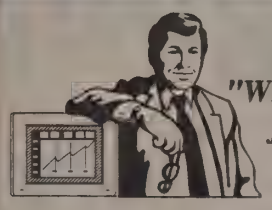
Networks To Go...



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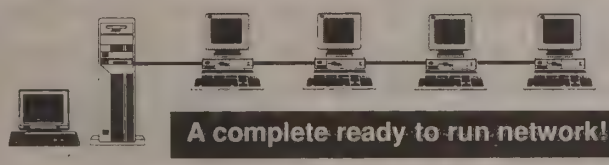

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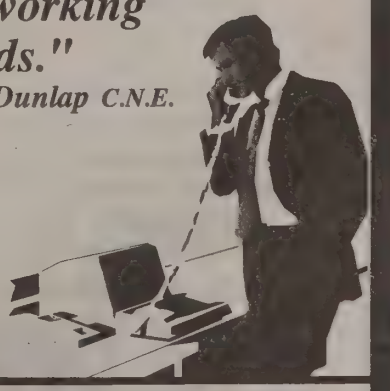

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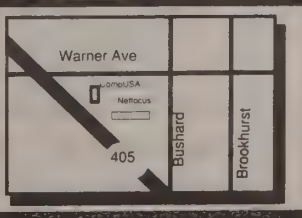

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Computer Of The Month

Gateway 2000 HandBook

In these days when computers have become commodities, it is exciting to find something really new in the marketplace. Gateway's HandBook is such a product. Although it is the first of a new category of computer—somewhere between the palmtop and the smallest notebook models—it has been anticipated since Chips and Technology first announced their 8680 PC-on-a-chip processor last year. In any case, Gateway is the first out of the gate. The new technology means that full-featured computers can now come in smaller packages. In fact, the manufacturers could actually make these models even smaller except for the need for a decent display and keyboard.

The basic configuration is an MS-DOS computer with a 40MB hard disk in a package measuring 9.8" x 5.9" x 1.4" and weighing 2 3/4 lbs. With battery pack, the weight jumps another 1 1/4 lbs. This unit will definitely fit inside your briefcase or handbag. The computer comes with 1MB of RAM, but is expandable to 3MB ($135).

While it is a full-featured computer that will run all of the standard programs you may wish to use, it is not a high-end system. No provisions are made for adding your own keyboard or a color monitor. What you see is what you get. In order to keep the weight and size down, there is no floppy drive in the unit. A Combo Unit housing a 3.5" floppy drive as well as a serial and parallel port is available for an extra $270. The computer does have both serial and parallel ports, but the parallel port is used to connect the Combo Unit. With the accessory module attached, you will have two serial ports, so you can use both a mouse and modem. If you skip the extra expense of the Combo Unit, you can transfer programs and data onto the system with the LapLink software and cable that come with the system.

This computer is designed to fill a specific niche between palmtops and laptops. It does so perfectly. The keyboard is not quite full size, but it is certainly adequate to accommodate a decent typing speed. Touch typing is not an exercise in frustration. In fact, I do not find the keyboard much more limited than most of the notebook computers I try out.

The computer comes with a rechargeable battery pack. But in a pinch you can even run the system on alkaline batteries. Either a full charge or a set of six alkalines will run for about 4 1/2 hours if you have set up the system for maximum power conservation. If you are going to use alkaline batteries, you will have to buy a battery holder ($20). An extra rechargeable battery pack goes for $70 and an extra AC adapter for charging a second rechargeable battery pack will set you back $75.

The screen measures 7.6" diagonally. While this is a bit smaller than most notebook computers, it is adequate. It is clear enough to read without eye strain and shows a full 25 rows x 80 columns, accommodating any software right out of the box. This is a big advantage over smaller computers, like the Poqet, that need specially configured software to accommodate a smaller screen. Technically, the HandBook offers CGA resolution, but it is a double scan system which means that the display is in fact 640 x 400 pixels.

The Gateway 2000 HandBook comes with a full array of software. MS-DOS 5.0 is included as well as Microsoft Works. This program is my favorite for beginners because it offers everything most users need: word processor, spreadsheet, database, and communications modules. In addition, the system comes with LapLink XL and Central Point's Desktop, a personal information manager. All of the software is installed so you can take the computer from the box and turn it on. Full documentation and distribution disks are, of course, packed with the system.

The Gateway 2000 HandBook fills a void like the sandwich and a half at the deli. When a palmtop is not enough and a notebook is too much, try the Gateway 2000 HandBook. ■

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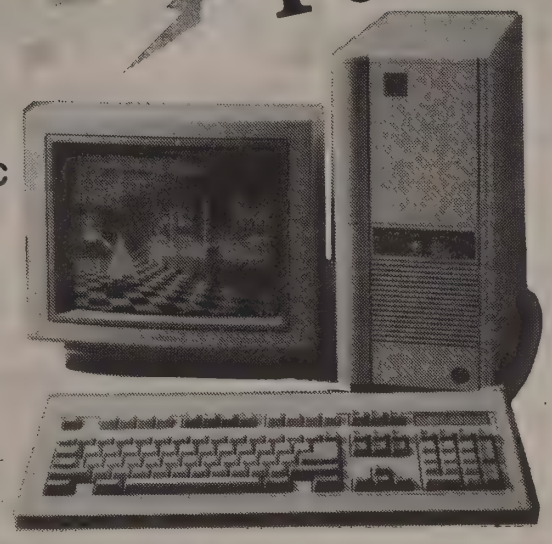

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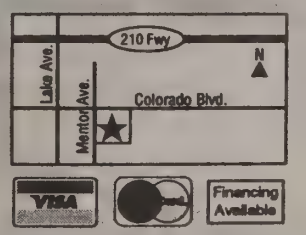

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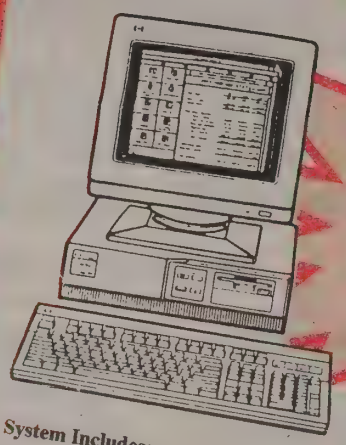

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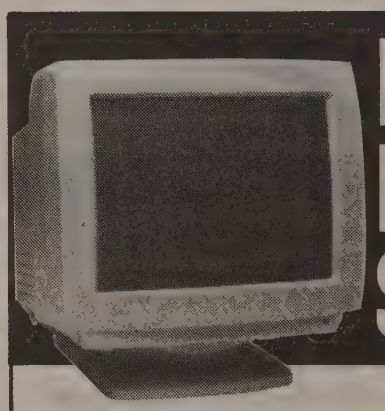

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Groupware For All Occasions

Collaborative Computing Across A Wide Range Of Applications

BY YACCO

LOCAL AREA NETWORKS

After the Seybold publishing conference in 1990, I wrote a column about the lack of workgroup support for desktop publishing. Two years later, at last month's Seybold conference at Moscone, Quark previewed a system built on Quark XPress that incorporates key workgroup features.

The Quark Publishing System (QPS) adds Quark CopyDesk and Quark Dispatch to Quark XPress. The system lets writers, editors, artists, production, ad departments, and others collaborate on the design and content of a publication.

CopyDesk is the word processor that allows you to work within QuarkXPress. Unlike some other systems, you edit right in the layout with CopyDesk. Dispatch serves as the administrator and controls workflow between the participants. A managing editor can use this system to monitor progress, assign tasks (stories, ads, etc.), and embed notes. The embedded notes appear highlighted on top of the copy like an electronic Post-It note, and serve as email to others in the group. If the editor cuts or rearranges text, the writer can go back into the document and see the changes, together with the editor's comments or further instructions.

QPS for the Mac is expected to ship in early '93, and should include ten copies of CopyDesk (it supports a maximum of twenty-two connections), and the Dispatch server and administration tools. Dispatch is designed to support its own XTensions, and some will probably be included in the package as well. The system is tentatively priced at $17,880—not including the required multipack of QuarkXPress licenses. (The Windows version of QuarkXPress itself is to ship on October 19th, so QPS for Windows will not appear until sometime after the Mac edition.)

It's interesting to note that the Seybold publishing conference is now simply called Seybold San Francisco—change which reflects a broadened scope and includes more forms of communication. Consider also that connectivity and groupware are two sides of the same coin. Communication links provide the infrastructure that enables groupware. The availability of groupware provides incentive for still more links.

The trend toward groupware is clearly going to continue. The stuff is starting to appear for more and more applications as vendors add the ability to interact and cooperate to their existing products. Capabilities can include messaging, scheduling, or some other form of coordinating communication like the sophisticated workflow controls that Office.IQ (covered here last month) and QPS have.

In fact, the field is already getting so crowded that another work-routing product called Dispatch is on the boards. This one, an add-on for the sophisticated Higgins email and scheduling system, is expected to be introduced at Networld in Dallas. It will automatically route any piece of work as an email enclosure.

But this seemingly simple evolution can hide a dangerous pitfall for the unwary: the lack of organizational commitment. Groupware can call for far more involvement, and at a higher level in the company, than other software. The range of organizational demands will vary with the implementation: the structure it imposes, the degree of cooperation it requires, and its susceptibility to sabotage from withheld participation.

LOW-END INFO-SHARING

Simple email falls at the low end of organizational demand. Other groupware applications, which seem to have entered the market by merely adding file locking, may require more coordination. Info Select, for example, is a cardfile database that's always been marketed as an easy-to-use personal information manager (PIM). The groupware version adds file locking and the ability to handle a second type of card stack, the network stack, in addition to private stacks.

Basically, Info Select is a flat-file database—either standalone or terminate-and-stay-resident (TSR)—built on a cardfile metaphor. It's similar to the Windows Cardfile accessory, but with many differences. For instance, it automatically shrinks cards to exactly fit their text, and it tiles as many odd-sized cards as fit the screen. It isn't limited to free-form text either: a forms feature lets you define fields. It also includes several sorting strategies, interapplication cut-and-paste, a mail-merge facility, and the ability to bubble more important cards to the top of the stack. It performs Boolean, date-range, and duplicate searches, as well as a "neural search" that finds cards that best fit a list of criteria by using fuzzy logic. Like the Cardfile dialer, its dialer automatically finds phone numbers, but in addition, the tap of an arrow key automatically gets the next number. The program's Overview command lets you instantly build a summary containing every line with a key string—say, a certain date.

Lotus Notes requires administration, management support, and cooperation from a quorum of participants before it can succeed. Lotus realizes this, and that's as big a part of the reason you can't buy it off the shelf as the installation requirements.

Info Select's salient groupware feature is the network stack used to share information. File locking allows anyone with access to modify these stacks. It's easy to assign one or more to each user's email for example.

THE HIGH END—LOTUS NOTES

At the extreme high end of the spectrum is Lotus Notes, a product that is sold only in a bundle with expert support.

Notes facilitates group communications and work processing, and enables new work

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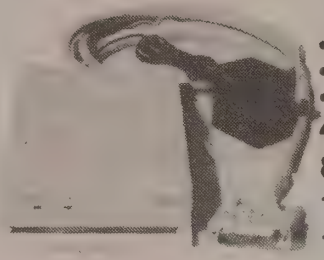

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methodologies. However, Notes makes sense only in the context of the individual business's work practices and procedures. Although the product comes with a set of fifty predefined applications, and all the development tools used to build them, every customer is potentially different, and each requires a custom installation.

"Very often when people bring Notes in with a particular task in mind," says Notes Product Manager Cindy Schuyler, "they find that it can be used to support any number of group activities." Its ability to support almost anything places a heavy demand on support services. "Its installation is further complicated by a networked environment that requires an OS/2 server," she says.

But another key factor in the Notes strategy is building user commitment. The Notes target market is a department with particular tasks that must be accomplished by people working together. From the beginning, Lotus knew that even a superior groupware product could fail on the job without a quorum of participants. Thus, for the first two years or so, Notes was sold only direct, and only in volumes that justified the necessary support (at least 200 licenses). Today, VARs and IBM also sell Notes to smaller installations, but always with the pre- and post-sales support that ensures both a proper installation and a proper attitude. The day when Notes will be sold over-the-counter still awaits a foundation of technical training materials, motivational training, and other programs to supplant this big-league support, as well as a more sophisticated market place.

Notes requires administration, management support, and cooperation from a quorum of participants before it can succeed. Lotus realizes this, and that's as big a part of the reason you can't buy it off the shelf as the installation requirements—in fact, bigger.

DIFFERENT JOBS, DIFFERENT TOOLS

Not every application demands this high level of committment. QPS is designed for a workgroup application where participants traditionally cooperate, and where a managing editor helps enforce the process. Info Select is useful for simple email and individual Rolodex applications with minimal group coordination. The degree of cooperation required from participants is further reduced by Info Select's file-locking mechanism. It frees resources according to a selectable timeout, or when the user changes stacks, hot-keys out (TSR), or quits Info Select.

However, although each of these applications requires different levels of commitment, none is totally free of the requirement. While QPS serves a natural group application, it could still be limited by reluctant participants. If advertising drags its feet, editorial has its hands tied (and its metaphors mixed). Routing work with Higgins must presume that the recipients will look in their mailboxes. Even a basic product like Info Select has the potential to do more given the right level of support and coordination.

Like groups themselves, groupware is a political animal. If you're installing groupware, or your groupware isn't performing up to expectations, ask yourself if you've really got the kind of backing you need from management. Get your executives committed—and have them communicate their commitment throughout the organization—and any groupware will work better. ■

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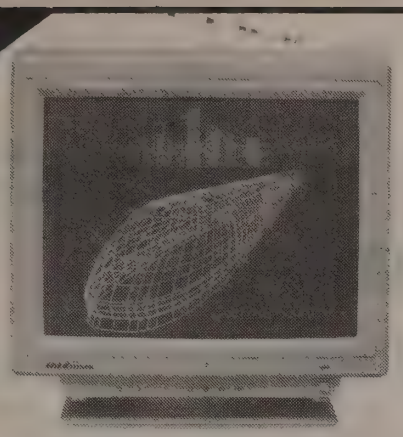

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How Managers Can Successfully Supervise Telecommuters

Techniques To Help Managers Implement A Telecommute Policy And Maintain The Company's Productivity

BY ROBERT MOSKOWITZ

Some of the loudest objections to introducing telecommuting into an organization are the mid-level managers' complaints about the potential problems such a policy will create. When managers cannot see employees busy at their desks they often become uncomfortable. Many managers react badly when they realize they cannot call impromptu meetings or drop in for a chat with a certain employee at any old time. Some fear problem employees will malinger when not in the office, while others worry about the added administrative burden of managing this new breed of telecommuting employee.

Each of these complaints is a clue to serious problem areas that a successful telecommuting program must address and overcome. But while the picture looks bleak from a theoretical point of view, actual experience demonstrates that all of these potential problems—and many others—can be prevented from causing a breakdown in the company's production, service, and profitability.

Here are some ideas and techniques that managers have found to be effective in making sure that a new telecommuting program does not disrupt established company operations or productivity patterns.

TO MANAGE WORKERS WHO "AREN'T THERE"

Some managers have grown used to seeing ranks of desk chairs occupied by warm bodies, and enjoy equating this sight with a productive employee team. But even for the best managers, there may be little if any correlation between the presence of a warm body and that body's production of useful work. The most effective managers tend to supervise their employees not by chaining them to their desks, but by getting them to accept fair work goals and then by evaluating each employees' actual results against the agreed-upon goals.

One of the hidden benefits of telecommuting is that this "management-by-objectives" style works very well not only for employees who telecommute one or more days per week, but also for employees who work full-time in the office.

The best managers' approach is to schedule a regular series of individual meetings with each employee—perhaps weekly, monthly, or quarterly—and agree on an itemized set of goals for the coming period. If employees work in teams, it's often possible to hold one meeting with an entire team and develop goals for everyone at once. Effective managers know that these goals should be expressed in writing and signed by all parties.

For employees who do data entry or word processing, managers can easily set quantitative goals for the days they work at home. But most employees do at least some work that requires qualitative assessment and evaluation. Here the savvy manager must work with the employee to get agreement on exactly what final product the company requires, when it is needed, and how it will be measured. Managers new to "management-by-objectives" often make the mistake of unilaterally imposing a set of goals on each employee. But experience shows that employees are far more enthusiastic about and committed to meeting goals which they have helped set—even when these goals are more demanding.

At the conclusion of each evaluation period, there's another meeting. The twin topics of discussion are how well the employee (or team) met the goals for the previous period, and what the new goals for the coming period ought to be.

But the best managers recognize that telecommuters may require some interim meetings to discuss progress, problems, and anticipated completion dates. Depending on circumstances, they may check with a particular employee once a month, or even every week or two, reviewing preliminary work and sometimes even lending a hand with a difficult aspect of a project. They recognize that staying closely involved improves the telecommuter's chances of completing the project satisfactorily and on time.

TO AVOID WORRIES

Another dimension of managing telecommuters successfully is identifying those best suited for the new arrangement. Many employees don't need close supervision to meet—or beat—their work goals. In even the best managed offices, however, there may be one or more employees the manager cannot comfortably trust to work hard without immediate, "hands-on" supervision.

To solve this problem, it's easy—and advisable—for the organization to set up a telecommuting program in which certain employees are not likely to become eligible. A common rule is to require the manager's approval before an employee qualifies for telecommuting. This also has unintended good results, because the desire to begin telecommuting sometimes prompts a problem employee to make a serious effort toward becoming more productive and reliable.

Managers can learn to select the right employees for telecommuting programs by considering a variety of factors.

WHAT DOES THE EMPLOYEE DO?

Before approving anyone for a telecommuting program, good managers tend to look at the employee's job responsibilities and analyze how much of this can be done away from the office. Responsibilities that are inappropriate for telecommuting include those that involve:

- meeting the public (receptionists)
- using equipment available only in the office (switchboard and other machine operators)
- supporting other employees who need immediate response (secretaries)
- working with confidential information that cannot leave the office.

A few employees do exclusively this kind of work. But most positions involve work that can be done perfectly well outside the office, such as:

- thinking, reading, analysis, writing or editing, or similar work with images and graphics, with computer programming, engineering, architecture, and so forth
- contact work with customers, suppliers, and in-house departments for purposes of planning, coordination, expediting, problem solving, and so forth.

A good manager can reorganize a position for an employee who wants to telecommute so that work can be bunched to allow at least one day per week away from the office.

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WHAT KIND OF EMPLOYEE IS THIS?

A second factor that good managers consider before approving an employee for a telecommuting program is their personality, character, work habits, and record on the job.

Experienced managers recognize that working at home successfully requires self-discipline and a desire to perform well on the job. It may also require a measure of self-sufficiency, because those who telecommute are going to be more isolated from their co-workers than those who continue to come to the office every day.

TO REIN IN A TELECOMMUTER WHO ISN'T PRODUCING

Although managers often fear that most telecommuters won't work out well, it's only a few employees who seem never to adapt to this new way of working. To deal with this danger, managers in the best telecommuting programs consider participation to be an option and a privilege, not a requirement. This allows leeway so employees who fail to adjust well or experience insurmountable problems with telecommuting can be brought back into the office full-time.

As soon as a telecommuter begins missing his or her performance objectives, it's appropriate for his or her immediate supervisor to open a discussion about the reasons for the unsatisfactory situation. Sometimes, helping the employee with additional training or to develop a better work environment outside the office will greatly boost the lagging productivity. Other times, there's just a mismatch between the employee and the requirements for successful telecommuting. Rather than reflecting poorly on the manager, this situation can prove a manager's skill, particularly if he or she is quick to identify and remedy the situation. Such experiences also help build his or her competence to manage all employees more successfully.

TO IMPROVE A TELECOMMUTER'S LEVEL OF OUTPUT

A good manager can also look into the reasons a previously successful employee has productivity problems when telecommuting. Often a frank discussion can pinpoint the problem and offer a viable remedy. For example, some of the most common reasons a telecommuter's work suffers stem from a failure to establish a solid "work environment" comparable to the one at the regular office. This environment should include:

- adhering to specific work times and break times during the day
- adhering to standards for attire and behavior. If at home, these can obviously be somewhat more relaxed than those for the office
- a good setting for doing the work. If at home, it should be separated from living areas and distractions like kitchens and TV sets
- sufficient resources and tools needed to accomplish the work.

TO MAINTAIN GOOD COORDINATION AND TEAMWORK

A good manager will also oversee the level of contact between telecommuters and others in the office. Telecommuters may require a certain level of contact to accomplish their work goals away from the office. This can be accomplished with regular access by telephone, by frequent meetings which telecommuters attend via the speakerphone, and by adding technology such as voice mail and computer networks. Those who need to contact the telecommuter should have a

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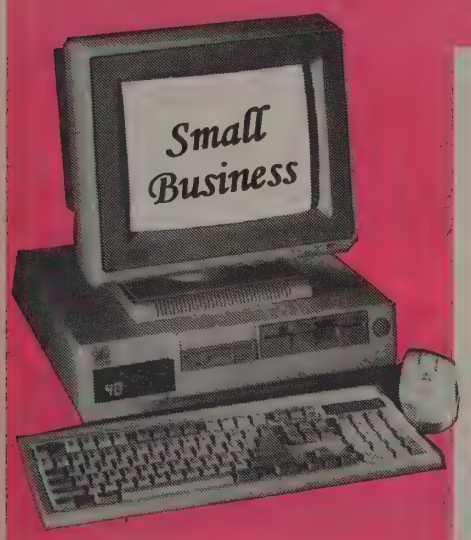

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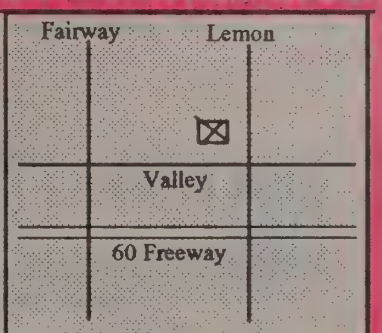

phone number where they can make contact or at least leave a message. Telecommuters must be trained to check for messages at least twice a day, and more often when a situation demands it. A manager can also eliminate some communications difficulties by making sure everyone comes into the office the same one or two days per week, thus making it easier to schedule meetings where everyone in a particular group ought to attend.

But even if the information required to accomplish their work is transmitted well enough, telecommuters may suffer a productivity letdown for emotional reasons. Many people require frequent contact with co-workers to avoid feeling isolated and depressed. A good manager will identify this problem, too, and encourage the telecommuter to make scheduling adjustments to avoid these feelings. For example, by spending fewer days telecommuting, or by taking lunch with the entire work group on a day when everyone comes in, a lonely telecommuter may begin to feel a part of the work group once again.

Despite fears to the contrary, quite a few telecommuting programs actually result in improved teamwork and productivity. This is usually because the managers involved make special efforts to keep everyone informed and up to speed.

TO MAINTAIN EMPLOYEE LOYALTY TO THE ORGANIZATION

Managers often fear that employees who telecommute will feel less a part of the organization than those who commute to the office every day. But managers who maintain channels of communication, provide mutually agreed upon work goals, and see that telecommuters remain part of the team generally find this not to be a problem. Many successful managers tend to "go to bat" for their telecommuters, keeping them involved in company affairs and making sure that telecommuters are recognized—and rewarded—for their efforts as much as they would be if they worked in the office every day.

But in many cases loyalty takes care of itself, because employees who want to telecommute generally see it as a benefit, and feel more loyalty to a company that allows and encourages this flexible mode of working than they would if the company rigidly prevented them.

TO MINIMIZE THE EXTRA DEMANDS OF SUPERVISING TELECOMMUTERS

There's no doubt that shifting to telecommuting for the first time places an extra burden on managers. They must select and help train each telecommuter, and provide back-up and assistance in overcoming any individual problems—some of which are bound to crop up. They must adjust to the new demands for increased communications, and to fewer impromptu meetings and hallway discussions.

But experience shows that managing telecommuters need not be any more demanding or time-consuming than conventional managerial requirements. Effective managers quickly learn to schedule their time with employees and to stick to this schedule. They learn to pick up the telephone for necessary conversations—which can actually be quicker than walking down the hall to an employee's desk. And they discover that successful telecommuters are happier and more productive than they were in previous days. This alone makes supervising telecommuters easier and more rewarding than most managers anticipate. ■

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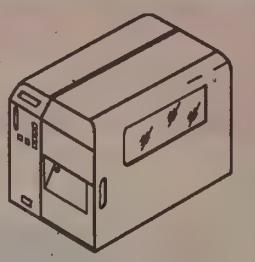

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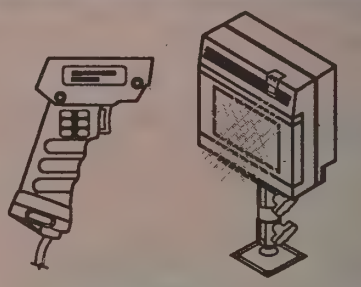

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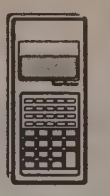

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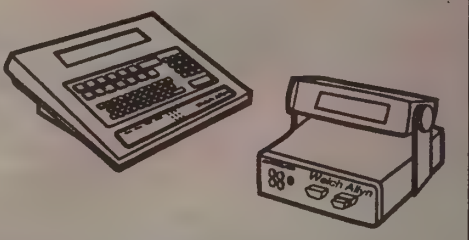

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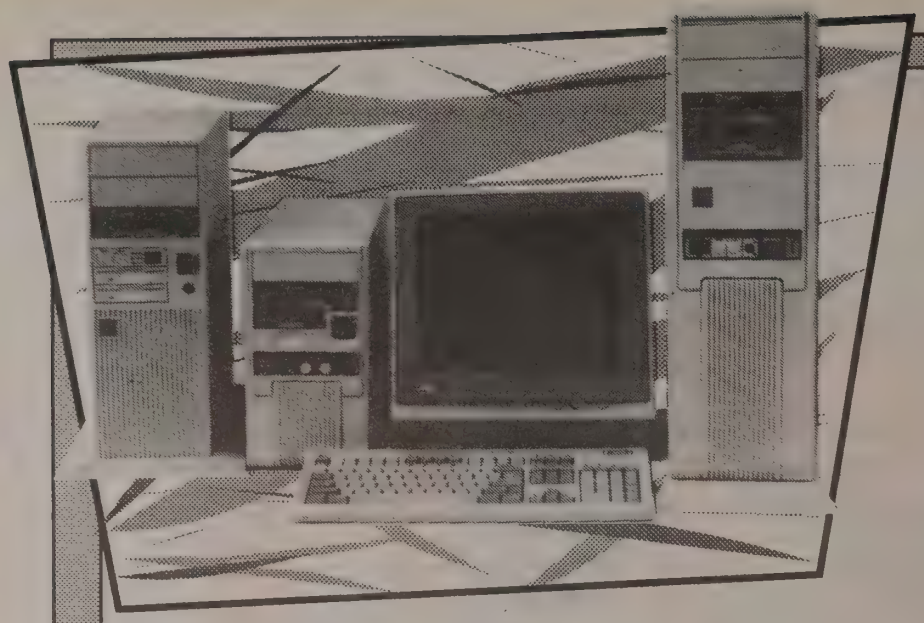

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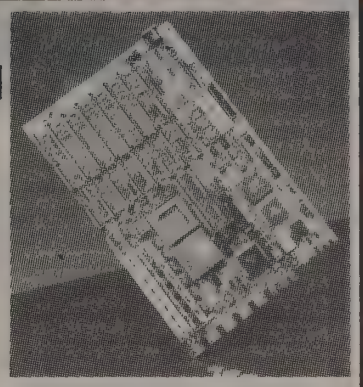

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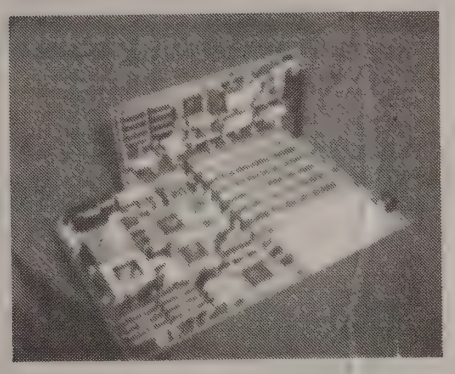

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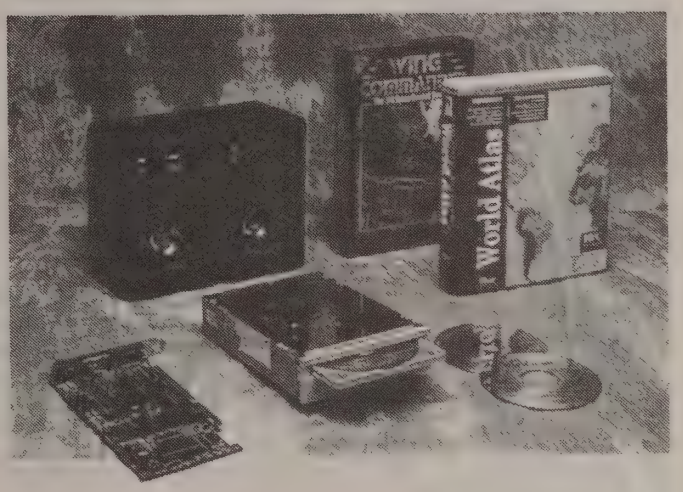

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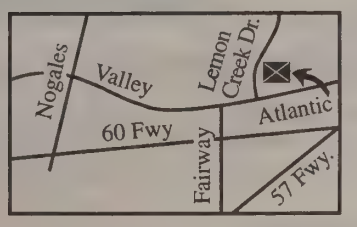

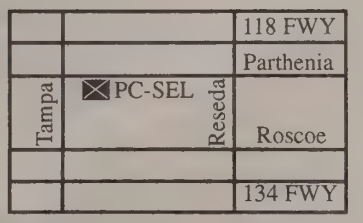

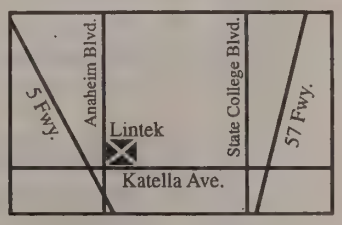

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Help Us Choose The Next MicroTimes 100!

Yes, dear readers, once again our January issue will feature our annual list of leaders and unsung heroes who played a key role in the personal computer industry in 1992. It's been another turbulent year, and we expect some more surprises before it's over.

As usual, we will have no great shortage of PR packets, annual reports, company backgrounders, and the like vying for our attention as we compile the list. But as usual, we'd like to see more of the picture, so we're calling on you for help.

Tell us who you think made a difference in the industry in 1992. They can be as well-known as Bill Gates, or unknown to the world at large. Tell us wh*y* you think we should put them on the list, what particular accomplishment makes them noteworthy. And please tell us where and how we can contact your nominee for more information.

We will give ten free one-year subscriptions to M*icroTimes* to randomly drawn respondents to this survey, so if you'd like to enter the drawing, please be sure to include your name and address at the end of this form.

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Thanks for your help!

—ed*s.*

Name of your nominee: _____

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Why should this person be on the list for 1992?

_____

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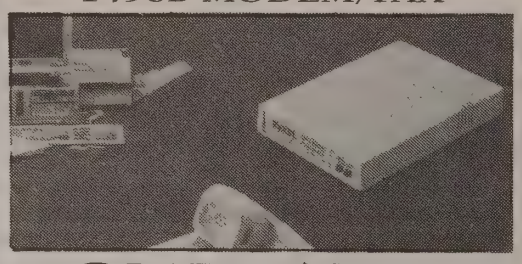

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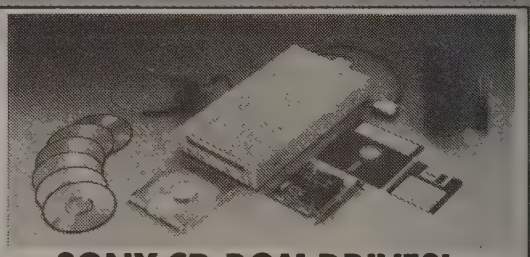

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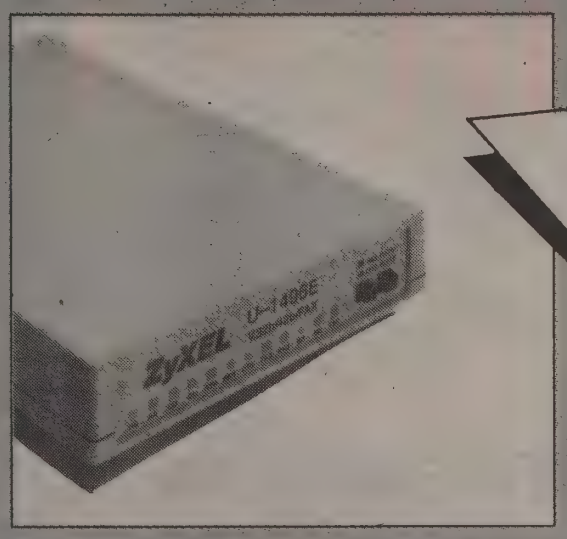

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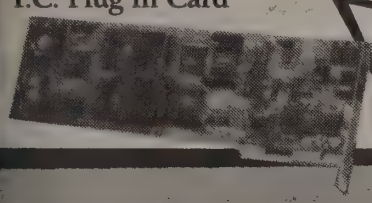

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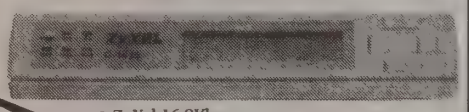

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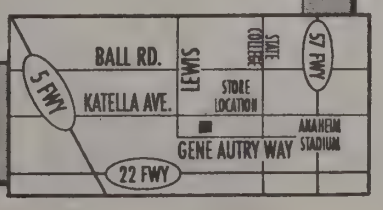

Early Reports From Collide-A

PHOTO: JAY BLAKESBERG

An Interview With Kaleida CEO Nat Goldhaber

By John Perry Barlow

The weird union of IBM

in the summer of '91, with progeny already on the way. The odd couple would jointly create two new companies, Taligent and Kaleida.

Taligent would be responsible for the development of next-generation processors and operating systems. Kaleida would have the far tougher and more ambiguous job of creating software, tools, standards, and interface metaphors for all the digitized imagery and sound which has generally been called multimedia but which is now, according to the latest in AppleSpeak, vaguely called "New Media."

Kaleida and its sibling entered a world which didn't seem particularly glad to see them. (One pundit sneered, "I've never seen anyone make an eagle from two turkeys.") On top of that, it drifted through its first year of existence without either a CEO or any other single leader to define its vision.

Given such a list of initial negatives, it was obvious that not just anyone would be right to turn Kaleida into an actual enterprise. But CEO Nat Goldhaber is not just anyone. He is, in fact, a fellow whose path to the top of Kaleida has been as touched with irony and contradiction as, well, a joint venture between Apple and IBM.

Nat is the son of two Berkeley physicists, who, despite being a regis-

"We had the following conversation sitting on his boys' swing-set, high in the Berkeley Hills. From that vantage it looked like Kaleida really could change the world."

PHOTO: MARY EISENHART

and Apple was consummated like a shotgun marriage

tered Republican, has a set of social views and aspirations which are very much at home in the People's Republic. He was the founder, at the age of 23, of Maharishi University (which is still alive and accredited in Fairfield, Iowa after twenty-two years).

He was the "Energy Czar" of the State of Pennsylvania during the Three Mile Island disaster and the energy crisis. While still in Scranton, he developed The Web, the first successful peer-to-peer, distributed networking system for microcomputers.

Goldhaber returned to Berkeley in 1984 and founded Centram Systems West where, in 1985, he got his first experience with getting Apple to talk to IBM. Recognizing that the recently introduced Macintosh would need some transparent method of connection with The Rest of Them, he created a low-cost LAN for heterogeneous machines called TOPS, short for Transcendental Operating System. (When I first became aware of TOPS, I didn't know Nat or his background and assumed that "transcendental," in this application, was some obscure computer term...)

By the time he escaped its presidency in 1988, he had sold Centram to Sun Microsystems and over six hundred thousand copies of TOPS. For the next four years, he was a high-tech venture capitalist, most recently serving as president of Cole Gilburne Goldhaber and Ariyoshi Management, Inc.; he also served on the boards of several companies, including OnTechnology and Shiva.

Nat is also a good friend, a deep guy, and fixed enough in some permanent-condition childhood to make him an excellent companion for almost any adventure. But when I met him in 1990, he also seemed like a fellow with a mild case of Post-Entrepreneurial Stress Syndrome, an affliction common among the young and absurdly successful. Despite what some might consider the full-time job of raising toddling triplet boys, he seemed to be casting about for a new venue in which to exercise his considerable sense of mission.

The combination of Kaleida's Herculean obstacles with its slim but Promethean possibilities added up to something about the right size and weight against which to match his highly heterogeneous skill set.

We had the following conversation sitting on his boys' swing-set, high in the Berkeley Hills. It was a beautiful day, the Bay sparkled below us, and everything seemed possible—including a Kaleida which really would change the world.

So why did you take this job?

I get to edit this, so I can make snide comments? [*laughs*]

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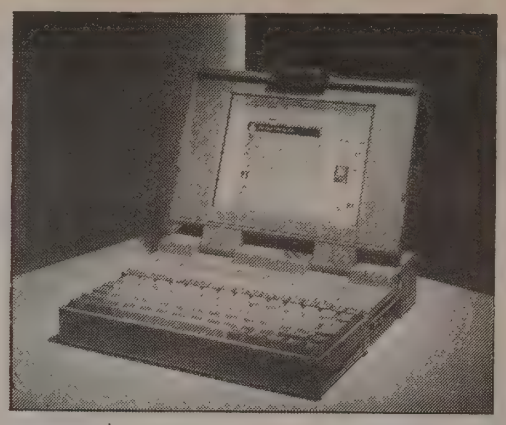

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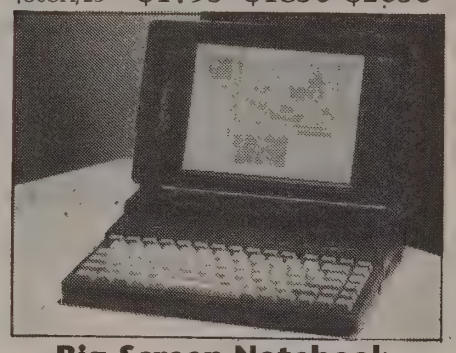

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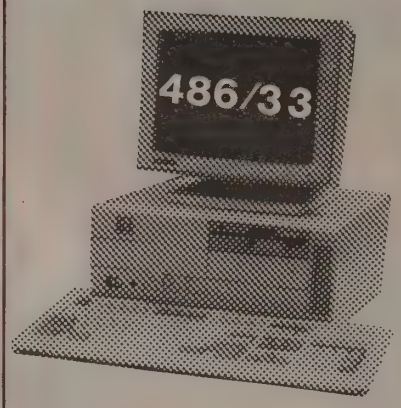

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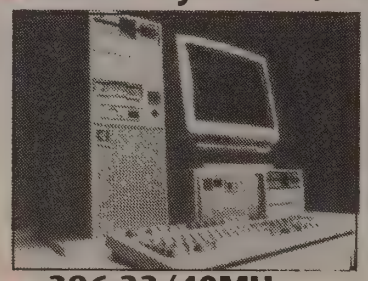

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interviews with the snide comments left in.

[*Snide comments omitted.*]

For a number of years now, I have observed this seeming collision of technology, information, entertainment, and communications. Many others have observed it as well. It struck me that there were real opportunities in that collision to bring about new industries that were not only economically powerful but also socially powerful. And that intrigued me.

I was disappointed by the results of the computer revolution in that most of the effects of the computer revolution—specifically the microcomputer revolution—were restricted to business. Although a number of enthusiasts bought computers and used them in a non-business context, far and away the mainstay of the computer industry is business. It's directed towards business, it's business-oriented, its whole being is business-ish. And, as such, it has failed to affect a vast majority of people in the United States, and certainly on Earth.

"I took the job because I felt it was an opportunity to guide this process. To design software, hardware, and systems that would be open, inclusive, unintimidating, entertaining, and informative. That is my motivation. That, and I think it's an opportunity to do very well."

This new intersection of these technologies and business...collision as we called it earlier...

I've wondered if you shouldn't spell Kaleida with a "C," thinking of the collision between IBM and Apple, but perhaps there's a better reason...

It struck me that there was an important role to be played here. It looks possible to bring about the inevitable digital world, somewhat sooner and perhaps somewhat better than would occur in the natural course of events, and it looks possible to direct it and guide it in a way that I thought was more broadly beneficial.

What do we want in the "inevitable digital world?" What's in there that might humanize or improve life for the bulk of us?

Well, you have to buy a bunch of premises in order to believe that this is going to be true, and you may or may not, but we'll see.

I seem to be trying to bring it about myself, so I must think there's going to be something good about it. Either that or I'm just perverse.

[*laughs*] Or we're both equally misguided.

First of all, let's cover computers as they are today.

The promise of the microcomputer revolution was, roughly speaking, that somehow these magical computational devices would empower people. People with a capital "P." Broad ranges of people, not just a few people in business. And the notion was that because these computational devices would be both extremely powerful and extremely cheap, they would also be extremely ubiquitous.

I suppose in some sense the original Commodore 64 and PET sales, and whatever the equivalent Atari machine was, did sort of suggest that there would be a very broad acceptance of these machines and that they might have a role to play.

But in fact, they were so hard to use that they immediately got stuck on a shelf. The friends of people who bought one, who saw their friends stick it on the shelf, didn't buy one. And that was the end of the promise.

So the microcomputer, from a business standpoint appropriately, from a social concept too bad, became relegated to the business world...

A microcomputer is a dedicated WordPerfect server in probably 75% of the cases.

Exactly, a dedicated WordPerfect or a dedicated Lotus server.

Which doesn't exactly encourage a person to have one at home.

It doesn't encourage people to have one at home, and although it may make things slightly easier for some people in a business context, and maybe it allows some business people to be slightly more effective at their jobs, for the most part it's had zero effect on anything, except creating this big new industry. That's a big disappointment.

I must point out that nobody was exactly sure how having a powerful computational device *was* going to empower people. I certainly wasn't sure of that—I had some speculation, I suppose. But very few people were able to articulate concretely the expected benefits.

Anyway, we can all agree that it didn't happen.

And I think we all agree that something was supposed to happen.

There was something that was supposed to happen, but we still haven't gotten very concrete about saying what it was. I'll probably make it more concrete in a minute.

The other thing I noticed happening—leaving aside for the moment the fact that we don't know what the benefit was supposed to be—was that the computers were becoming actually harder to use, instead of easier.

There was a big blip in ease of use with the introduction of the Macintosh. And I suppose, if one were feeling very kind, one could argue that there was something of a blip when Windows started to become more ubiquitous.

Personally, I find Windows more difficult to use than DOS, because you have to know DOS and Windows to use it. Windows is not particularly straightforward or intuitive in any way. If you were feeling very, very kind on your off days, you could say that the hordes from Redmond actually did promote a graphical user interface in the eleventh hour, and that was a small trend toward slightly easier to use.

But on the whole, if you see the massive direction that computers have taken, it's clearly more difficult to use a computer today than it was eight years ago when the Mac first came out.

It's certainly more difficult to use a Mac now than it was then.

Absolutely. The Macintosh community would hasten to add, "Yes, but look how much more powerful it is." My answer to that is, "You're right, but also you've made it far more difficult for the nonenlightened to participate..."—if computer use can be equated with enlightenment.

So the uninitiated become increasingly disenfranchised from whatever these alleged benefits are, and the enfranchised become increasingly more specialized, because it takes more and more of their cycles to figure out how to use it. And you find that the microcomputer, instead of being a tool that was going to level the playing field and allow everyone equal access to these unknown benefits—well, it's clearly not doing that. It's clearly becoming a tool that, if anything, exacerbates the differences between...what's the right word?

The "knows" and the "know-nots"? The technologically adept..?

The initiated and the uninitiated, let's just leave it at that. Anyway, it's too bad. I think.

I agree it's too bad. Though perhaps it wouldn't be so bad if the unenlightened really properly appreciated the benefits of being unenlightened.

[*laughs*] That's possible, you never know! It could be that somehow they're far better off because they don't waste all those cycles trying to figure out how to use these silly boxes. Get to spend time outdoors instead of chunking away at some foolish box.

But anyhow, for the sake of these arguments we'll say this is not the case and that somehow they're deprived.

So here it is, the eve of the collision of these industries, and we now have a new opportunity to restart.

What I would like to suggest is that it's important that we restart it well this time, knowing a priori that, left unguided, the trend is away from broad humanization of computing, and towards a high, deep business orientation. Wrongly, I think.

Therefore, I took the job because I felt it was an opportunity to guide this process. To design software, hardware, and systems that would be open, inclusive, unintimidating, entertaining, and informative. That is my motivation. That, and I think it's an opportunity to do very well.

To do good and do well, as the missionaries used to say.

To do good and do well. One of those rare opportunities where you can be both moral and successful, instead of amoral and successful, which is the norm. Not immoral exactly, but amoral.

One might point out that you have two very

large corporate masters, both of which are, in their present state of development, well beyond simple human morality. A corporation the size of either Apple or IBM is a creature you can no more expect to have a conscience than you'd expect a horse to have a conscience.

I've met some pretty nice horses! And I'm sure you have too, but I understand the principle. The point is well taken.

The answer is, interestingly, that I think there are individuals within those companies who have plenty of conscience, and who understand that this was an opportunity to do the sorts of things that I've described.

And I think that this has, at least in part, motivated them. I don't think this was explicitly something which they believed would be an enormous money-maker for them, but rather something they believed it was Important with a capital "I" to do. That some higher principle would be upheld by creating this entity. I actually believe that.

I agree with you, at least in terms of the individuals involved. I just wonder if the value they place on that kind of importance will maintain itself through some of the patchier periods to come or whether the bottom line will suddenly become a lot more important with a little "i."

Well, unknown. There are funding agreements that carry this Kaleida entity into existence and profitability, or at least what I hope will be profitability. There is, already committed, more than adequate funding to do that. It's always possible to un-commit, I suppose, but not without an abrogation of obligations made in writing. And therefore I think that there's enough time for me to turn this thing into something that can be both good and profitable before the money runs out. We'll see.

This sense of mission you refer to may be missing a critical element though. It seems to me that most enterprises start out with a person who has a sense of mission, who gathers around himself others who share it, and, finally, resources to pull it off.

In this case, you've got two large institutions pooling resources to create another big institution, to which they add, a year later, the fellow with the sense of mission, namely yourself. Don't you think that's going to be a difficult sequence to overcome?

Well, two comments. First of all, the answer generally is yes, I do think that it would be a difficult sequence to overcome.

But, point two, I became involved a year ago, on a consulting basis, and actually influenced a lot of the initial design of the company. I know my influence was important in structuring a careful business plan for the company. We need to develop it, but there is at least a starting business plan, and I had my hand in it. That was what was agreed to by the boards of directors at both Apple and IBM. So I think there is general agreement about what the structure of this company ought to be and how it ought to go forward.

Also, I'll tell you in all frankness, one of the most important issues during my negotiations before I accepted this position was the degree to which I would have autonomy to pursue profitable as well as appropriate directions for the company. That is, I wanted assurance that they believed it had a life of its own, directed by its own people, as opposed to being superimposed by the big companies.

But if Kaleida truly has a life of its own, then it's possible for its progenitors to see it as a competitor. I'm concerned that you folks are going to be developing technology which many companies, particularly IBM and Apple, will want to develop themselves. So the natural course of events may lead them into direct competition with you. How do you deal with that? If you are a truly separate entity, how do you say, "All right, I've got this little bailiwick carved out. Don't you go do it too."

The answer to that question is "Carefully."

That's how we proceed. I think that your analysis is correct. I think that IBM and Apple are capable of creating internal development groups whose agendas are identical or extremely similar to ours, and that they may in fact compete with us over the long haul. My job as CEO is a) to do those pieces so much better than they would be done internally that there would be no question about which one is appropriate to accept. And b) to work politically and actively to explain to both parent organizations that their original conception of an independent organization promulgating standards, that is neither IBM nor Apple, but somehow the synergy of them both, is the appropriate way to proceed. And I will do that as well as I know how.

It is a minefield. But fortunately I have a crude map where the mines are.

You and I have just been to Japan together, where they know a lot about competing and cooperating at the same time. And it seems in this country we don't know very much about how to do that—we either compete or cooperate. I'm just concerned that an effort to be both here will result in their hamstringing you while competing with you. Saying "You can't do that, you are ours. We're going to do that because we want to."

It's politics, it's technology development, it's the deployment of resources in an appropriate manner. It's thinking smart and fast and effectively. And if I'm lucky I'll pull it off.

My objective is to make them a lot of money, to give them a very wonderful, extensible, flexible, and universally applicable multimedia scripting language standard that they should be proud to include as part of their operating systems. They are certainly signed up to that conceptually. It's my obligation to deliver, and while I'm doing it, to keep them enthusiastic about what I'm doing.

That brings up a different set of questions... I continue to think that the real purpose of multimedia is not publishing or presentation but communication, which means that you've got to have tools that ordinary people can use to write video postcards to Mom with. The first efforts that I've seen at those types of tools, such as HyperTalk, were not very successful in my opinion.

Too hard.

I found it much too hard. Do you think that it's going to be possible for Kaleida to come up with something which is both powerful enough and easy enough?

There's a broader question: Is that Kaleida's mission, to build that kind of tool? Not directly. Our initial goal is to build the enabling technology and let somebody else who's well equipped to do it build the tools.

That buck sure gets passed around.

You would want to argue, I think, at this point, that nobody's equipped to do that or they would have done it by now. I'm not sure. MacroMedia did come out with a product called Action!, which was a sort of video-postcard multimedia. It was strictly business presentation-oriented, but I must say it was easy to use. Without reading the instructions, I was at least able to do a slide show where I had things flying in and sparkling on the screen. Not very inspiring, perhaps, but definitely moving—with a small "m"—within ten minutes after opening the package up. So I thought it was pretty successful. I don't think it's been an enormously successful product in the marketplace though.

My suspicion is that Kaleida will develop some tools and a rich set of interface standards, which will be suggested but not imposed on developers. We expect our interface standards to inspire the development of some extremely easy-to-use tools.

Evocative APIs.

Right, but it's not our intent to be in the tool business. We would like to see a lot of people in the tool business and we don't want to compete with them.

Do you think that's wrong?

Well, personally, I think a lot of what's wrong with the technology at the moment is that everybody has been eager to build the most powerful thing that could be built, and has passed on to somebody else the job of making that powerful thing accessible. Good interface design is difficult and even profound. You have to know an awful lot about the complex matter of human awareness. How humans look at things is not an engineering problem, it's a spiritual problem.

I agree. It leads to an ontological and an epistemological problem: How do we know, and what do we think is?

Right, exactly. So you see this constant thrust toward the technologically more powerful and the more complex, which isn't matched necessarily by more usable tools for ordinary folks.

I know that we would like to develop one or two really great multimedia titles. Those probably would use either the language that we're developing itself, Script X—which will be a HyperTalk-like language—or would be built using something like MacroMedia Director. Or a combination of both. I certainly think that we have to show the world that

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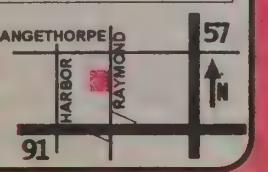

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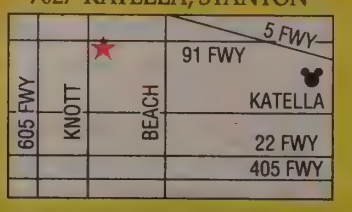

it is possible to build really great titles in this environment—titles with high production values that are both entertaining and informative, where it makes sense to have the interactivity, as opposed to nonsense, which is what most interactive programs, except for games, end up being. We need some titles which will entice and delight a very broad range of people, not just highly vertical products, like 747 manuals. Those we know can be done well; we hope they'll be done better with Script X, but we know that those are done well already.

There are very few broad titles that seem worthwhile in existence today. There are some. But I think that we need to demonstrate more attractive, more broadly acceptable titles. And we need to do it as exemplar of a future.

"One of the most valuable things that will emerge from this digital age is the decentralization of the information infrastructure of publishing. Each individual will actually be able to be a movie studio, a textbook publisher, a scientific journal publisher, a newspaper publisher, a fiction publisher, a fact publisher."

It seems like one of the reasons there aren't very many titles has to do with the multitude of formats in which one might publish. I understand Apple and IBM have suddenly decided that they're going to jump on CD-ROM as being the method of publication. But it seems to me that one is already at the end of its limits.

[*laughs*] Well, it may or may not be.

As a format for publishing anything with real video on it?

In fact, it may not be. There's lots of talk about double-speed, double-density CD-ROMs. Let's say for example, if you get four times the data rate off of a CD-ROM, or eight times or sixteen times, it's clear that you can have good video on those things as well.

MPEG 2 is well under way, there are a number of implementations of MPEG 2 that are in the labs now that look really good. With MPEG 2 and Quadra speed, Quadra data rates, I think you can get acceptable video. In that sense, CD-ROM may in fact not be at the end of its life, but at the beginning of its second generation.

I agree that current CD-ROM technology is probably inappropriate for really knock-down, bang-up multimedia titles, at least ones that have large components of real-time video and production values equivalent to a television program. That will change, I believe, relatively soon. I think everybody is working on it who builds CD-ROM devices.

You mentioned MPEG 2. Do you think Kaleida's going to be in a position to get everybody in line on a compression standard? John Sculley told me in an interview a while back that they did Kaleida because they wanted to have something with sufficient horsepower to say "This is how it's going to be," to clarify the Babel of standards and formats that have been out there.

It's unclear to me whether it's appropriate for us to adopt a single data-compression standard or whether, as QuickTime, we simply need a slot to insert whatever is today's best compression technology. My suspicion is that we're better off remaining at least relatively agnostic with respect to specific compression technologies.

The problem with picking one is that maybe we have some inklings of which one would be successful, but we could also be picking one that's not as good as one that comes out just six months later. These technologies are moving with blazing speed, and there are people who are sitting in their dark rooms hacking away right now, coming up with stuff that's vastly better. It's an area where I think the American genius will be able to shine. It's the kind of thing that we do uniquely well. I think we probably will find much better compression/decompression technologies in the near future.

It would be a shame to pick one and end up picking the wrong one, or in fact pick one and make it a standard when other stuff is significantly better. I think our job here is to leave a slot where it's easy to plug in a data compression/decompression standard, later on.

So your governing philosophy for the whole project is opening the architecture every opportunity you get.

Absolutely. We just got through meeting with many companies in Japan. One of the pitches I made that they liked best was the degree to which we want to open this up. We will open up the APIs to everything. We will publish the language. We believe that that's the only thing that proves that we're going to stay honest and make our royalty rates reasonable. We'll follow the Adobe model more than anything else, of publishing the language as well as selling software based on it. So we have an extremely broad view of what open architecture means, and we have planned to remain as faithful as possible to that view.

It seems like you may have some cultural problems with at least one of your progenitors, though. I mean, Apple is still extremely proprietary about the contents of its ROMs, even though it has demonstrably done itself a great deal of harm over the years by remaining closed in its architecture. Will they be willing to open up, or allow you to be that open?

I believe that Apple now recognizes the importance of openness, and is culturally changing.

They may be slow, but they're trainable.

[*laughs*] Uh, that's not exactly the way I would put it, but something like that.

And more power to them. I think it's an extremely tough transition, and I don't want to predict the manifestations of that change. But I think there's a recognition that openness is terribly important. I think the creation of Kaleida was in fact an early demonstration of that openness. Willingness, for example, to cooperate with the enemy—not, of course, from any Federal Trade Commission perspective—on the development of the Power PC. A pretty extraordinary thing—they agreed on a processor type and they agreed on an underlying operating system.

This brings up the problem with these kinds of alliances. If you look at previous alliances like this, they haven't been terribly successful, partly because other technologies get developed that one company or the other prefers. I'm now looking at the development of the Newton, and their decision to use the ARM chip in the Newton instead of a RISC chip developed jointly. I wonder to what extent that's going to subvert the Power PC?

Oh, you know, I doubt that it will. My suspicion is that Newton is regarded by IBM—and I'm absolutely making this up, I have no basis in fact for stating this, except opinion—is regarded by IBM as not germane to the issues of the Power PC, which is fundamentally designed, at least in its initial form, to be a business machine. That's not to say that IBM thinks it's a bad thing; only that it's not relevant to the Power PC issue.

But your point is well taken. I think that Newton is a big departure from everything that's central at Apple. It's a different operating system, it's a different processor type, it's a different market, it's a different margin—as a genuine consumer electronics device, the margins are going to be considerably different from other Apple products. It is a different metaphor, it is a specialized rather than a generalized device, it is their real first serious foray into the world of consumer electronics.

I think that there's a lot of experimentation going on, appropriately, and that out of that experimentation will come either an enormously successful first instance of this product, or a second instance which will be more successful and perhaps less experimental because they'll have some experience. I wish Newton all the best of luck. I'm not suggesting anything otherwise. And it may be right on the mark from the beginning. We'll see.

One of the big problems that multimedia seems to be having relates to laws, not technology. Better tools are not going to solve the whole intellectual property dilemma. I keep seeing the same video clips over and over again, and there's a reason for that. The provenance of these things is very hard to

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sort out. What can be done? How do you see Kaleida's role in this?

Assuming that it's possible to solve the issue of a common platform that plays multimedia well enough to give people an experience roughly equivalent to an afternoon sitcom, we then need to explore the ways in which intellectual property can be purveyed.

So that one might own that sitcom.

So that one might own the sitcom, exactly. And this is, of course, the thorniest of all issues associated with the advent, not only of multimedia, but of the digital age altogether.

So thorny that almost nobody's talking about it.

This issue certainly transcends the relatively simple issue of how to have specific pieces of information on a CD. Because that's a quantifiable issue—everybody can go out and figure out who they can go to and who they can buy the stuff from for a one-time right use. It's a pain, but it's certainly doable.

The bigger question is what happens when we're all linked up through some sort of as-yet-unknown bandwidth provider. When all of us are able to access everything that's ever been created, and on top of that, when a lot of people feel their role in life is to take pieces of things that other people have created and reassemble them in new forms and redistribute them under their own mark...

That may in fact be their role in life, since it seems that's how human knowledge has proceeded so far.

This is not a criticism. In fact, it's a prediction. I think this is going to happen. I absolutely think it's going to happen, and I think it's wonderful.

This is something very basic.

It's very basic. And what the hell else are we going to do in this country, since we can't build things any more? We will be giving each other information. We will be service providers to each other, and to the rest of the world, and a few people will still be out there tilling the land, thank God, but it will become increasingly mechanized and there'll be a very small component of our gross national product which is product already. It will all be fancy, entertaining, and hopefully important information services. Or other forms of services. And most of those will be provided digitally, in my opinion.

What the answer is now, I don't exactly know. But it is relatively clear that early on somebody is going to have to come up with a mechanism that radically changes the way in which the copyright laws are applied, basically. Or, de facto, change the way the copyright laws are applied, by virtue of the creation of an economic system that justifies authors giving up some of their rights with respect to copyright.

Actually if you asked me which is most likely to happen, I would certainly say the latter. I do not believe that we're likely to make major *sui generis* copyright modifications to support a digital age, at least not in the near future.

It would be better if we didn't.

It would be better if we didn't because we'll get it wrong. At least we'd get it wrong for a while.

But I definitely think that authors can be persuaded that they can make tons of money by providing people the ability to republish their information, their works, their owned titles, their great acts of creativity, in different forms.

More authors need to have the experience that I've had, which is having their work distributed and having it increase, rather than decrease, in value. But if you haven't had that experience...

I thought for a moment you wanted them all to have the experience of cattle ranching.

[laughs] No. That would be really nice if that could happen, but I don't think it's a viable option. Certainly wasn't a viable option for me!

No, I agree. It is the promise of that sort of world, I think, that will bring about the ability to create that kind of world.

Again, the fascinating thing that strikes me again and again and again is that the principal role that Kaleida can play is as a kind of nucleus around which these industries can coalesce. There's no other way to describe it. We're not simply a catalyst, because we want to be a participant—I guess a catalyst participates in some portion of the reaction, but we still want to be around!

Maybe a better metaphor is you want to be the seed crystal in the supersaturated solution.

That's right. We want to be the seed in the supersaturated solution. We want to be at the center of that crystal.

You've got a pretty good shot at that, I would say.

Fleetness of foot again becomes the central ingredient to a successful Kaleida. I recall a moment—this was prior to my being hired—my board of directors and Sculley were sitting in a room at Apple, and they asked me, "What is the single central critical issue that will make Kaleida successful?" And I thought about it for a while, and I said, "It's fleetness of foot. It's that more than any other single component."

Guerrilla versatility.

Guerrilla versatility. Thank you. That's a nice word.

Which gets tricky if you're a light little dog with two great big tails.

[*laughs*] Well, somehow we have to get them both wagging in opposite but equal directions and cancel each other out!

It's the stationary sausage syndrome.

Right. Well, you said something when you were talking about intellectual property a moment ago, about getting things on the Net. How do you see Kaleida's role in the larger political arena, as regards opening the architecture of the net? You will have a fair amount of credibility in areas that count, such as the FCC and other regulatory bodies. Do you think Kaleida has a business interest in trying to hasten, say, the deployment of ISDN?

This is a very self-serving question. The answer is that we will of course completely turn ourselves over to the Electronic Frontier Foundation for all direction and guidance, because clearly they've thought it through and we haven't! [*laughter*] And of course be copious in our donations as well!

Excellent! Good news!

That's why this is such a good interview! [*laughter*] Ah yes, where was I?

The more accurate answer—although what I say about EFF is true of course—the longer-term answer is that it's unclear how, ultimately, these bandwidth pipes are going to be deployed to the end-user, to the home. We have no idea if it's going to be some super-unbelievable NREN or whether it will be your local cable company, which, parenthetically, also provides you with video dialtone, or whether it's going to be an enlightened phone company that really puts fiber into the house.

Or some polyglot combination of the above, and other things we haven't thought of yet.

Right. We don't know. See, we want to be active in assisting anybody who sees the vision of bringing broad bandwidth to the home, and we will be active in the following sense. We will try to find material to push through those systems that hopefully will bear some of the characters of enlightenment of which we spoke earlier.

All right...

[*laughs*] I *knew* you would do that!

Let's get to the characters of enlightenment we spoke of earlier.

This is a hard one.

It is a hard one, but I think it's one that we always need to be coming back to. How does it serve humanity to leave the physical world and move into a completely infomated environment? How do we benefit from this?

This is probably exactly the same thing that the people who were standing around Gutenberg's house said. "What's going to happen now that everybody can read, and no longer goes out and tills the soil?"

The answer is, I hope, good things. And good things of the sort of empowering—you know, I'll tell you, I think this may be my Berkeley bent, but one of the most valuable things that will emerge from this digital age, it seems to me, is the decentralization of the information infrastructure of publishing. Each individual will actually be able to be a movie studio, a textbook publisher, a scientific journal publisher, a newsletter publisher, a newspaper publisher, a fiction publisher, a fact publisher. We'll all be empowered to do that with nothing more than a handicam, a VCR, a TV set, and the Net, however that Net is constructed.

Right, moving from a one-to-many distribution model to a many-to-many model.

And I think that this decentralization, this popular usurpation of a power which currently is held by relatively few, is absolutely the most socially transforming event that I can conceive.

Continued on page 168

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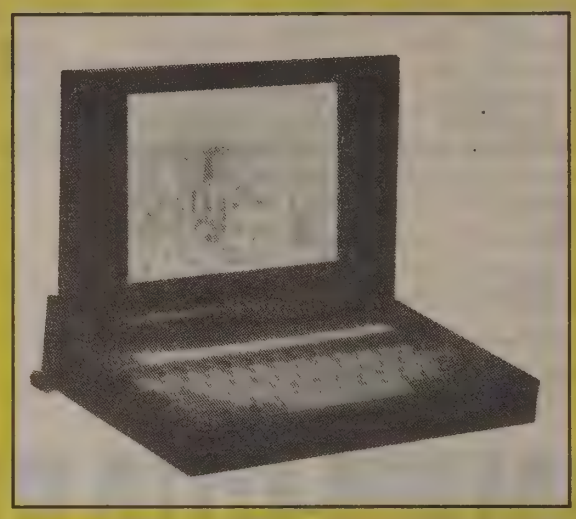

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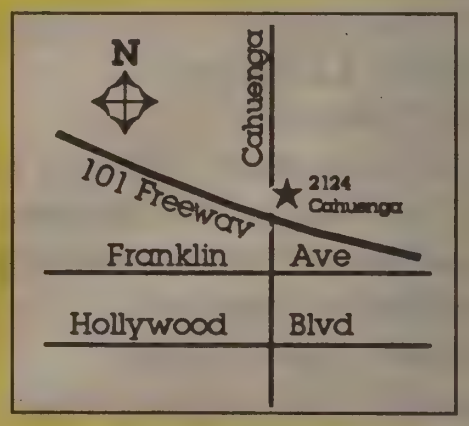

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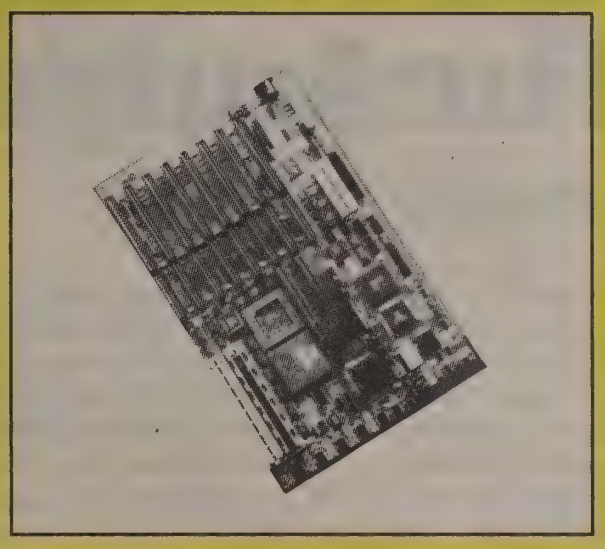
intel inside

MICRONICS COMPUTERS INC.

80486 VL-Bus System Board



Features:

MICRONICS VL-Bus =
PERFORMANCE GAIN

For peripherals which transfer large quantities of data to and from memory, the Local Bus provides significant performance enhancements. This results from the VL-Bus' direct link between the CPU/Memory and the Local Bus device. The direct link provides an interface which is 32 bit wide and running at the system speed of up to 33MHz rather than the slower I/O speed of 8.3 or 10MHz. The end result of these features is a bus performance increase of 2 to 10 times.

MICRONICS VL-Bus =
DESIGN FLEXIBILITY

Micronics 486 VL-Bus board packs a lot of features in it's Baby-AT form factor. Not only does the board offer an on-board local bus IDE interface to control two hard drives, in addition, multi-I/O is also integrated on-board, consisting of 2 serial, 1 parallel and floppy interface. To allow for more expansion, there are 8 16-Bit ISA slots of which 2 are VESA VL-Bus compliant. On top of all these features, Micronics has also provided for future needs by supporting up to 64MB of memory support on-board, an upgrade processor socket and cache memory modules of 64KB or 256KB. So as applications become hungry for more memory or faster processors, the board can easily be upgraded.

Benefits

The Micronics VL-Bus board allows system manufacturers to create a complete line of affordable high performance plug-and-play 486 products. By providing industry recognized compatibility, these system platforms can be combined with many manufacturers peripherals such as Video, Disk, Network and Multimedia controllers. This represents a tremendous opportunity to create substantial product differentiation without the usual integration headaches. In addition, with the proliferation of Graphical User Interfaces which require faster Video and Disk performance, these Local Bus products will be the best Windows application solution.

Specifications

Processor Support
486SX 20,25
486DX 25,33
486DX2 50,66
Processor enhancement socket for Intel Overdrive processor upgrade
Expansion
6 16-bit ISA slots
2 VL-bus/ISA slots
Memory
.4 SIMM sockets for 70 pin 1 Mx36 or 4Mx36 SIMMs
Caching:
8K internal cache
Second level cache support, optional 64K or 256K cache support

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Supports add-on cards that can assume control of the bus
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UNIX Microsoft Windows
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Word Processing On The Amiga

Four Affordable Options

BY DOUGLAS J. NAKAKIHARA

With so much emphasis on the Amiga as a graphics platform, development of basic computer software, such as word processors, has been slow compared to its Mac and PC equivalents. Furthermore, with the exception of a rather dated version of WordPerfect, none of the major packages available on the other platforms has been ported to the Amiga.

There is really no technical reason for this, since the Amiga uses the same CPU family as the Macintosh. With the Amiga exploding into the video/graphics arena, all of those videographers, graphic artists, etc. still need a good word processor.

Fortunately, there are several to choose from on the Amiga platform. Most of these programs have evolved significantly over the years and are becoming mature packages.

This month we'll take a brief look at four offerings: ProWrite 3.2.4 from New Horizons, Final Copy 1.3.2 from Softwood, KindWords 3 from the Disk Company, and Excellence! 3.0 from MSS. These products were tested on an Amiga 3000 using a high-resolution screen under AmigaDOS 2.0.

Since these are all word processors, they were generally more alike than different. Each program included the standard cut-and-paste editing functions, as well as a spell checker and thesaurus. Also, all of them used paragraph-based text formatting similar to Word for Windows. That is, formatting tabs, line spacing, etc. are set at the paragraph level, and each paragraph can have unique settings. All of them had more or less the same ruler-border that allowed you to visually set margins, indents, and tabs. KindWords and ProWrite, however, provided automatic paragraph spacing, which eliminated the need to enter two carriage returns after each paragraph.

I do a lot of word processing on an MS-DOS machine at work, and generally the only way to work on the same files on my Amiga at home is using ASCII-format files. Obviously, any special text formatting gets lost, but for documents like this article, it is not needed. Only ProWrite and Excellence! allowed me to go back and forth between platforms in a satisfactory manner. (Amazingly, the difference between Amiga and MS-DOS linefeed codes did not present a problem.) The other two programs required additional massaging of the text. Consultron's CrossDOS allowed me to transparently read and write MS-DOS disks on my Amiga.

PostScript printing and AREXX support were featured in all of the word processors except for KindWords. (The lack of PostScript support may be a non-issue once AmigaDOS 2.1 is released, with its built-in PostScript driver.) I was surprised to find Final Copy was the only one not to include a mail merge printing capability.

All four programs will operate on 1MB RAM floppy-drive-only systems, but ProWrite and Final Copy require at least two floppy drives. However, to fully utilize all features, a hard disk and additional RAM are highly recommended.

RESOURCES:

ProWrite 3.2, $99.95
New Horizons Software, Inc.
206 Wild Basin Rd.
Ste. 109
Austin, TX 78746
(512)328-6650

Final Copy 1.3, $99.95
Final Copy II, $159.95
SoftWood, Inc.
(602)431-9151

KindWords 3, $124.95
The Disc Company
11440 San Vicente Blvd.
Los Angeles, CA 90049
(310)207-1600

Excellence! 3.0, $99.95
Micro-Systems Software, Inc.
12798 Forest Hill Blvd.
Ste. 202
West Palm Beach, FL 33414
(407)790-0770

CrossDOS 5.0 $59.95
Consultron
8959 Ridge Rd.
Plymouth, MI 48170-3213
(313)459-7271

A2386SX (Bridgeboard), $959
Commodore Business Machines
1200 Wilson Dr.
West Chester, PA 19380
(215)431-9100

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PROWRITE

Before the introduction of Final Copy, nothing matched the features and capabilities of ProWrite. ProWrite is still a solid product, with all the makings of a first-rate word processor. Many of its features aren't available in the other products. For example, of the four packages reviewed here, it was the only one that allowed me to copy text style (i.e., font, bolding, etc.) and apply it to other text. ProWrite and Final Copy were the only ones that allowed me to quickly change the case of text. ProWrite does include a bookmark feature, but you can only use one per document. Bookmarks allow you to mark a spot in a document and quickly return to it—an invaluable tool.

ProWrite provided the most ways to select text for editing using the mouse. Using different combinations of mouse clicks and dragging, you could quickly select a word, sentence, paragraph, etc. However, it was disappointing to find I could not select text using only the keyboard. Both Final Copy and Excellence! allowed text selection by holding the shift key while pressing the cursor arrow keys. This feature reduces the number of times your hand must leave the keyboard to use the mouse.

For printing, ProWrite has a high-quality setting which automatically uses larger fonts and then scales them down to a finer resolution. This helps achieve high-quality results with a dot matrix printer, and is especially effective with AmigaDOS 2.0's built-in outline fonts. For non-outline fonts, this feature works best when fonts twice the size of the fonts used in the document are available.

If you are using AmigaDOS 2.0, ProWrite leaves an AppIcon on the Workbench, upon which you can drag and drop documents to automatically load into ProWrite. Additionally, of the four packages, only ProWrite provides the option of using the standard AmigaDOS 2.0 ASL requestors (though using them prevents you from accessing certain options).

ProWrite has a few shortcomings. It was the only one whose thesaurus didn't give a definition of a word, in addition to antonyms. It was also the only one that didn't scale fonts on the fly. ProWrite will only let you use the font sizes installed in AmigaDOS. If you need to include graphics, screen updates are very slow, and there are no provisions for flowing text around graphics.

New Horizons has announced that the next upgrade, v3.3, will include better graphic handling with automatic text-wrap, a print preview mode, and password protection. Also, you will be able to name and locate graphics quickly within a document. Full clipboard support is also promised, as well as support for Soft-Logik Publishing's "HotLinks." HotLinks allows programs that support it to dynamically work with the same data.

FINAL COPY

Final Copy is the hands-down winner for printing quality on a dot matrix printer, due to its exclusive use of the proprietary Nimbus outline font technology. Unfortunately, these fonts occupy over 1MB of disk space and are not supported by any other program.

Reportedly due to copyright infringement concerns, the fonts have abbreviated names, which made selecting one more confusing than it should be. However, I was able to overcome this by renaming the font filenames using a directory utility program. It is important to note that Final Copy does not allow the use of any AmigaDOS fonts, including

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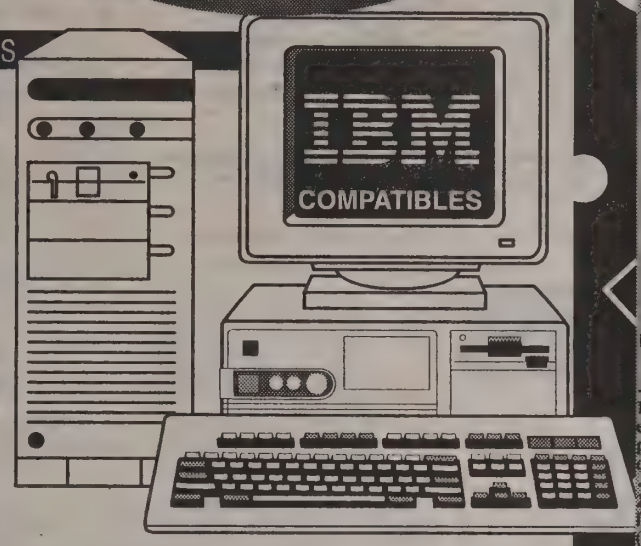

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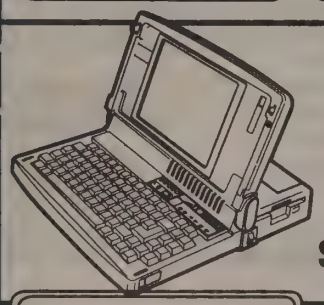

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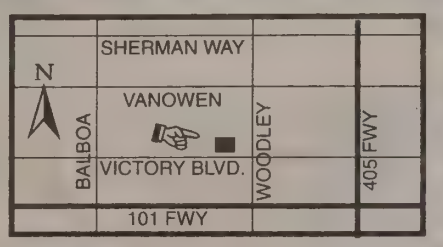

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Serial Mouse

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IDEK 5217 Monitor (17" - 0.28mm Dot Pitch)	$915
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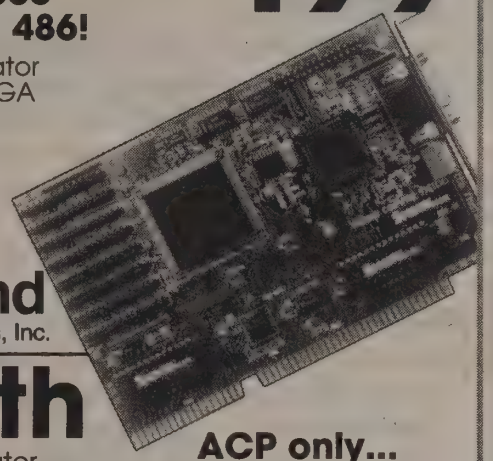

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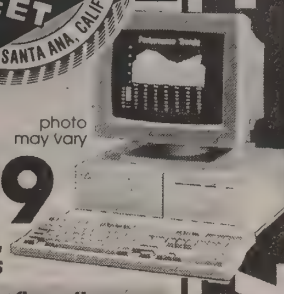

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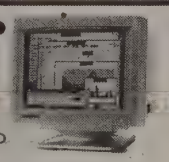

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Sure, none of these comes close to matching the features of Word for Windows, but they don't list for $495 either! At list prices near $100, all these word processors are absolute bargains!

AmigaDOS 2.0's outline fonts.

The screen display is beautiful thanks to the Nimbus fonts. Scrolling is also very fast, especially considering outline fonts, which are normally slow, were being used. Also, Final Copy is the only program that provides adjustable display magnification, a very handy tool for previewing entire pages. Unfortunately, when typing in close magnification, the screen does not scroll with the cursor, so you can type right off the screen. Also, from time to time I encountered certain un-reproducible display anomalies.

Final Copy's graphics handling is also the best of the bunch. I found it very easy to insert, move, size, and crop graphics. Text flow around the graphics was also supported, including contour flow. By making the background color transparent, you can make text follow the contour of the graphic; you can also adjust settings to create a border around the graphic. To change graphic settings, a simple double-click on the graphic brings up the graphic settings requestor.

Final Copy is also the only program of the four capable of linking graphics in a document. This provides the advantage of making the document file smaller; the graphic only appears once on your disk.

Final Copy lacks a few features too. It's the only one of the four programs that doesn't have an undo feature, an absolute must for any program. No mail merge printing is supported either.

The soon to be released Final Copy II appears to fill in most of the missing gaps. This version will include time-saving format features like style sheets and master pages. It will also include a built-in structured drawing program for making jaggie-less boxes, circles, lines, and arrows. This version adds the much needed mail merge feature and WYSIWYG PostScript printing. Final Copy II will also have a larger spellchecker dictionary and thesaurus. Version II will also have a new suggested list price of $159.95. For Final Copy owners the upgrade price is $60.

KINDWORDS 3

Although KindWords is a more than adequate word processor, its interface has an unpolished appearance. Don't let this unfortunate mask fool you though; KindWords includes most of the features you need. Although it is the only one of these word processors that doesn't include AREXX support or a column option, it is the only one that does include online help.

For graphic handling, KindWords is second only to Final Copy. It provides generally the same graphic formatting abilities, with the exception of border creation. In addition, the KindWords color palette offers a remapping option, to include frequently used colors in the graphic's palette. This allows for a better representation of the graphic on screen.

KindWords' UltraPrint feature allows very high-quality printing on a dot matrix printer. This is basically the same as ProWrite's high-quality printing option, where larger font sizes are scaled down for printing. KindWords, however, requires the larger font sizes to be exactly two or four times the size of the screen font—if you're using

Continued on page 148

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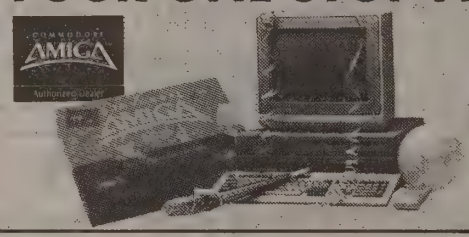

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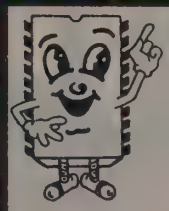

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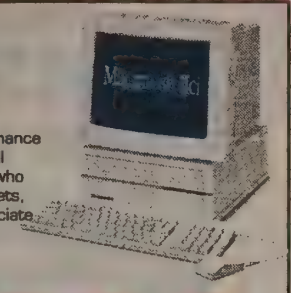

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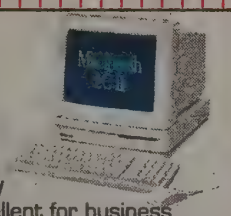

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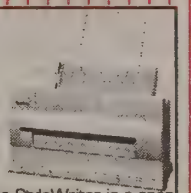

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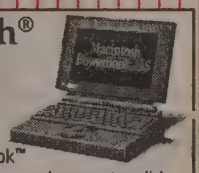

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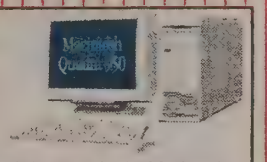

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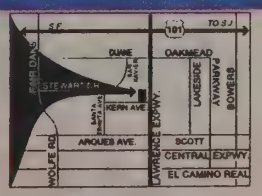

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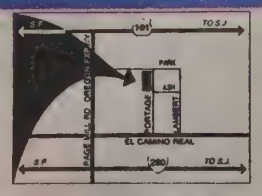

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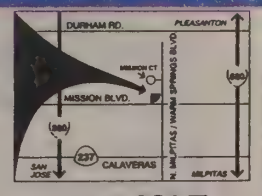

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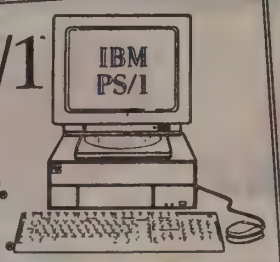

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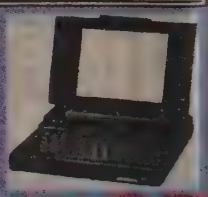

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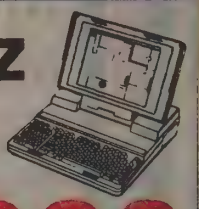

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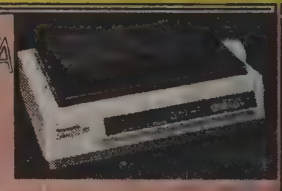

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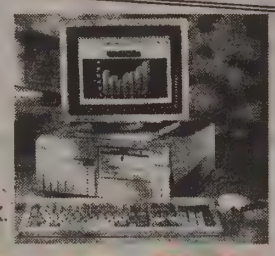

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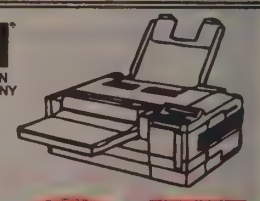

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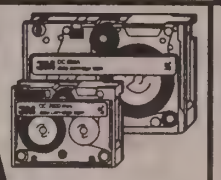

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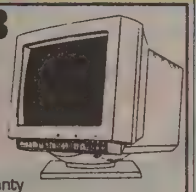

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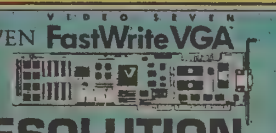

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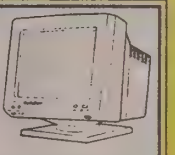

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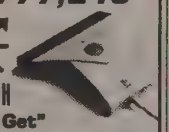

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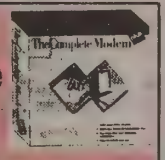

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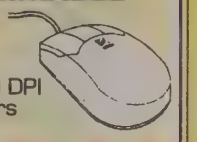

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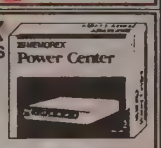

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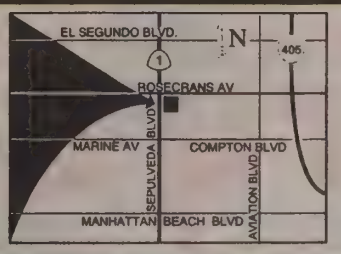

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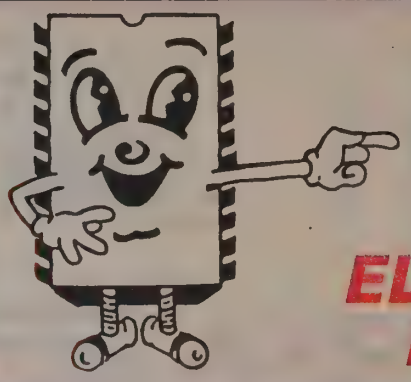

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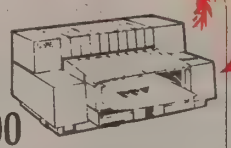

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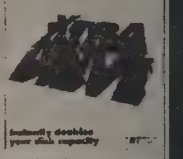

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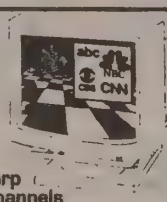

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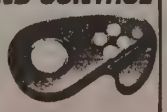

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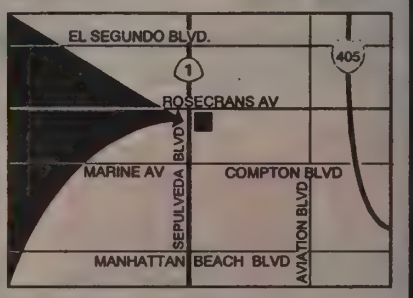

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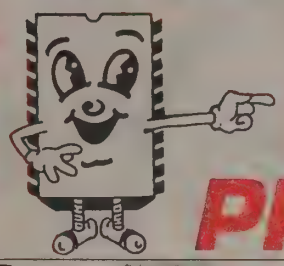

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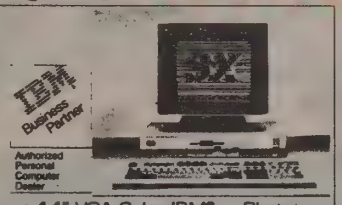

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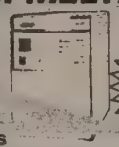

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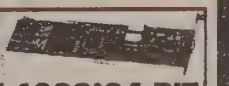

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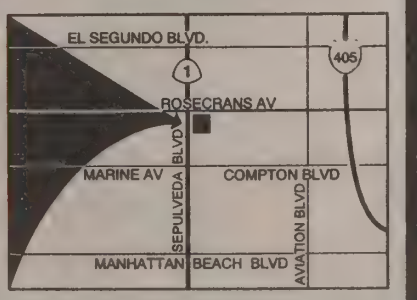

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This is the Mac-oriented event of the year in Southern California, with exhibitors including Apple Computer, Adobe, Aldus, Microsoft, Lotus, and dozens of other vendors. More than just a trade show, the MacFest also includes two performances of Mac art, music, and multimedia, featuring leading artists and musicians, new multimedia projects, performance art, and industry updates.

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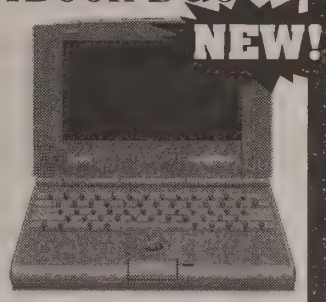

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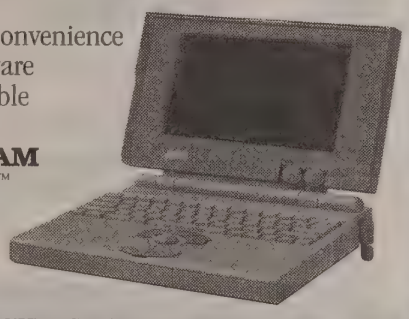

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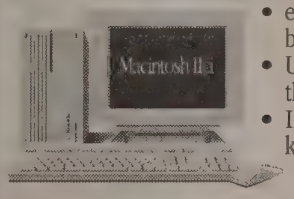

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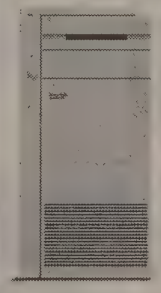

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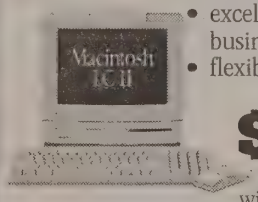

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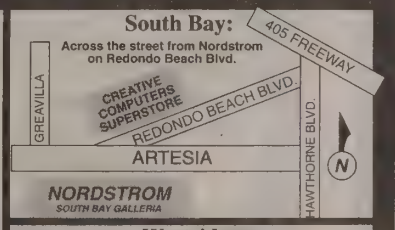

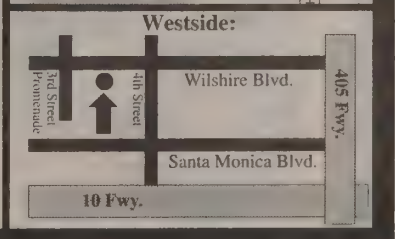

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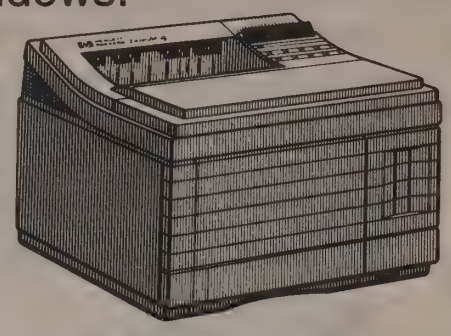

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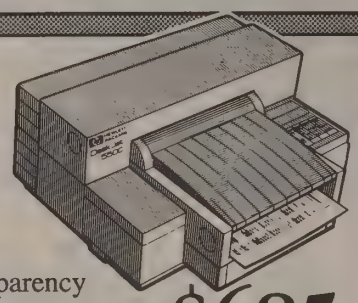

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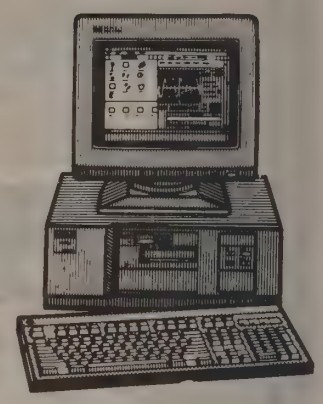

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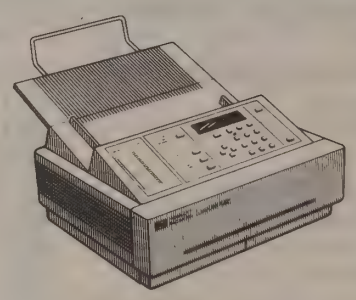

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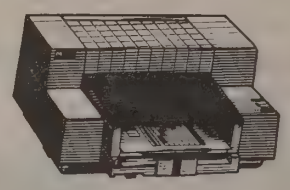

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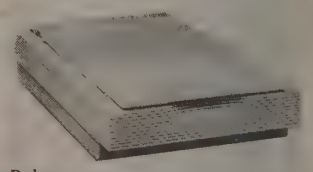

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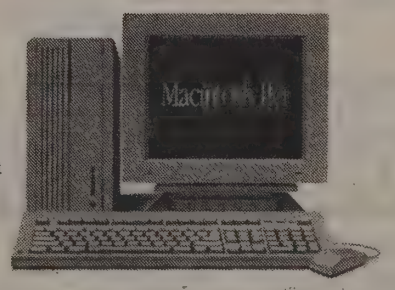

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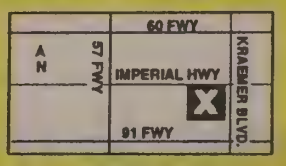

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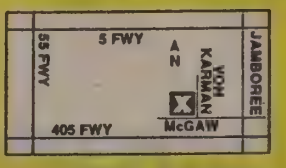

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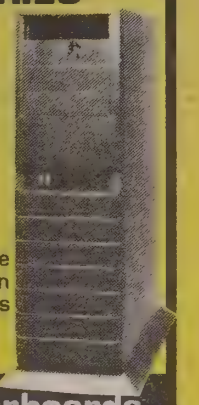

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MAGNET 1.0

Magnet 1.0 uses agent technology to let users create "personal assistants" or agents to automate a wide range of repetitive file-related tasks. Agents act like magnets, attracting files to their location at prespecified times. To create an agent, the user tells Magnet what files to find, what to do with the files (such as copy or move), and when to do so. This is done through an easy point-and-click interface, which requires no scripting. Some of the tasks that Magnet can automate include: backing up data, synchronizing of your desktop Mac and PowerBook, keeping shared files current, and file find and management. This program requires a Mac running System 7. ($129.95) No Hands Software, Inc., 200 Page Mill Rd., Suite 260, Palo Alto, CA 94306. (415)321-7340.

CLICKART ARTISTRY & BORDERS

ClickArt Artistry & Borders, from T/Maker, is a collection of more than 325 high-quality EPS images, including over 150 in full color. The graphics can be used to make attractive borders and add visual impact to invitations, stationary, and other documents. This collection

Continued

PRODUCT UPDATES

➤**Andrew Tobias' Managing Your Money 5.0 for the Macintosh** has been released at a reduced price. MECA Software, Inc., 500 Walls Dr., Fairfield, CT 06430-0912. 1-800-288-MECA.

➤**Approach Software** announced **Approach 2.0 for Windows**, a major upgrade to its Windows database. Registered users of Approach 1.0 for Windows may upgrade for $49. Customers who purchased v1.0 after July 31, 1990, are eligible to receive the upgrade for a minor shipping and handling charge. Approach Software Corp., 311 Penobscot Dr., Redwood City, CA 94063. (415)306-7890.

➤**ATI Technologies** has **lowered the prices** of many of its **Accelerator graphics boards**. The ATI Graphics Ultra and the 8514-Ultra will decrease in price by as much as 29%. ATI Technologies, Inc., 3761 Victoria Park Ave., Scarborough, Ontario, Canada M1W3S2. (416)756-0720.

➤**Claris** announced that users who purchase **ClarisWorks** between September 1, 1992, and January 1, 1993, will receive **Quicken** at no extra charge. Claris Corp., 5201 Patrick Henry Dr., Box 58168, Santa Clara, CA 95052-8168. (408)727-8227.

➤**Claris** released **FileMaker Pro 2.0 for the Macintosh**. Owners of any previous version of FileMaker may upgrade for $89. Claris Corp., 5201 Patrick Henry Dr., Box 58168, Santa Clara, CA 95052-8168. 1-800-544-8554.

➤**CYMA** announced a major upgrade to its top of the line **Professional Accounting Series software—PAS III**. CYMA Systems, Inc., 1400 E. Southern Ave., Tempe, AZ 85282. (602)831-2607.

➤**Fifth Generation Systems'** new Macintosh development division, formerly **Salient Software**, released **AutoDoubler 2.0**. Upgrades are $19.95 for registered users and free to those who purchased AutoDoubler after July 15, 1992. Fifth Generation Systems, Inc., 124 University Ave., Palo Alto, CA 94301. (415)321-5375.

➤**Frame Technology** is offering **FrameMaker 3.0 for Windows** bundled with **CorelDRAW for Windows**. Frame Technology Corp., 1010 Rincon Circle, San Jose, CA 95131.

➤**Granny's Old-Fashion Software** released **Ample Notice v3.0**. The update of this appointments scheduler and personal information manager package adds mouse support, pull-down menus, and a more extensive online help system. Granny's Old-Fashion Software, Inc., Route 4, Box 216, Boone, NC 28607. (704)264-9606.

➤**Kansai Electric** is bundling its four-user printer sharing device, **QuadLink**, with **Insight Development's PrinTools**, a set of six printer utilities. Kansai Electric USA, Inc., 2005 Hamilton Ave., Suite 220, San Jose, CA 95125. (408)377-7062.

➤**Microsoft** released **Microsoft Money 2.0 for Windows**. Microsoft Corp., One Microsoft Way, Redmond, WA 98052-6399.

➤**Polaris Microsystems**, of Pacheco, CA, acquired **Stellar Associates**. Polaris will honor warranties and provide technical support for all Stellar Associates' products and customers. Polaris Microsystems, Inc., 5702 Marsh Dr., Unit E, Pacheco, CA 94553. 1-800-775-2601.

➤**Softshell Systems** released **LAN Tamer Release 2.2** network menu system. Softshell Systems, Inc., 3200 Ash St., Palo Alto, CA 94306. 1-800-322-7638.

➤**Tektronix** announced a **trade-in program** for **QMS printers**. QMS color printer owners can get up to $2000 in cash for their old QMS ColorScript thermal wax color printer when they purchase a new Tektronix Phaser III PXi plain-paper color printer. The offer is valid through December 31, 1992. Tektronix, Inc., PO Box 1000, MS-63-583, Wilsonville, OR 97070-1000. 1-800-835-6100.

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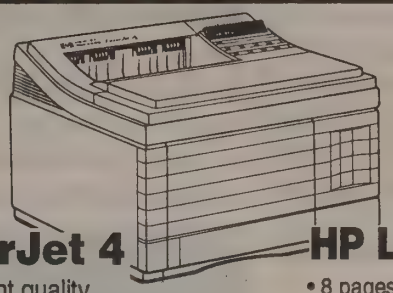

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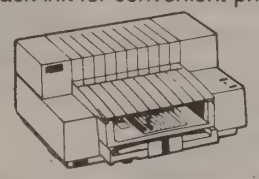

DeskJet 500 ..... $375
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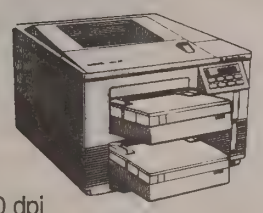

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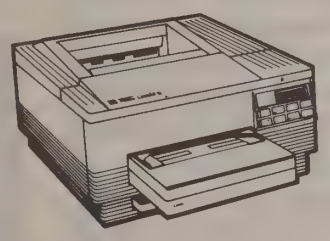

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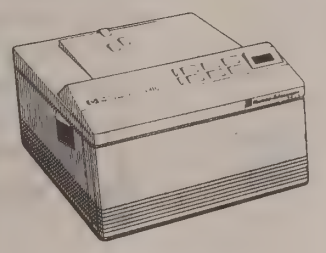

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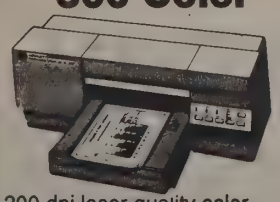

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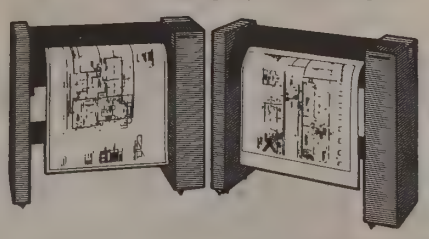

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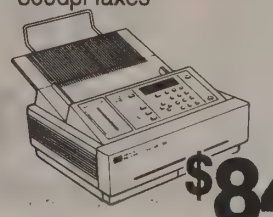

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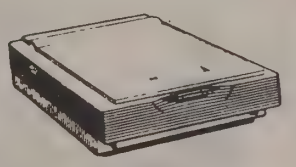

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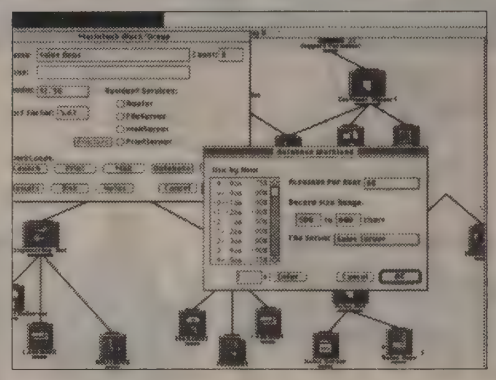
NETVANTAGE II

NetVantage II is a unique new Apple network design, simulation, and optimization tool for the Macintosh, targeted for network designers, managers, and administrators who run AppleTalk on LocalTalk, EtherTalk, or TokenTalk networks. It can model very small or very large networks and provides packet-level simulation as well as high-speed



performance modeling. NetVantage II's Mac-standard user interface allows fast network design and configuration by click-and-drag selection of network components, then wiring the resulting component blocks together. (Suggested list price for NetVantage II/50 for modeling networks of up to fifty nodes is $999; NetVantage II for any size network is $4995) EclecTec Software, Inc., 269 Mt. Herman Rd., Suite 202, Scotts Valley, CA 95066. (408)461-2040.

PRINTERS

IBM 2390 PS/1 PRINTER

The new IBM 2390 PS/1 Printer, available

from Lexmark International, is designed for home office and small business PC users. It is a 24-wire, narrow-carriage dot matrix printer, with 360 x 360dpi, that prints up to 200cps in FastDraft and 60cps in letter-quality mode. A paper tear-off feature is included so that forms are advanced only to the end of the print job. Also offered is a snap-in, clean hands, IBM Auto-Inking ribbon that yields 3.5 million characters per cartridge. The IBM PS/1 personal computer's technical support service, now available to PS/1 Printer customers, provides eighteen-hour-a-day toll-free assistance by telephone or through the Prodigy online bulletin board. ($499) Lexmark International, Inc., 740 New Circle Rd., Lexington, KY 40511. 1-800-358-5835.

PROWRITER C-615 II PRINTER

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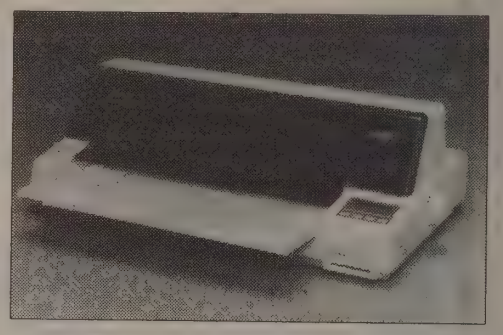

12cpi. Complementing its standard parallel and serial interfaces, the C-615 II printer provides IBM Proprinter X24E and Epson LQ-850+ emulation. The C-615 II has an enlarged library of resident fonts that includes Draft, Courier, Elite, Roman, and San Serif. Fourteen optional font cards are available. ($1175) C-Tech Electronics, Inc., 2515 McCabe Way, PO Box 19673, Irvine, CA 92713-9673. 1-800-347-4017.

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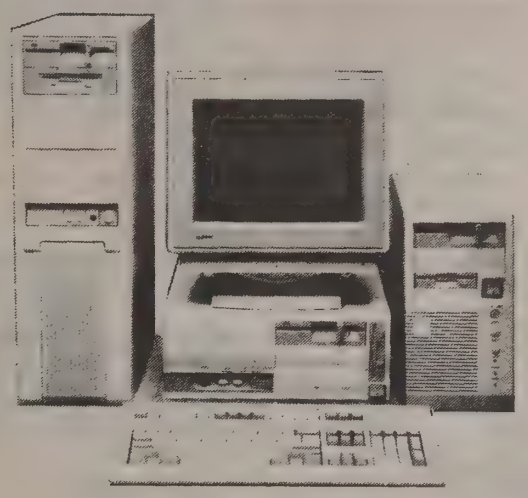

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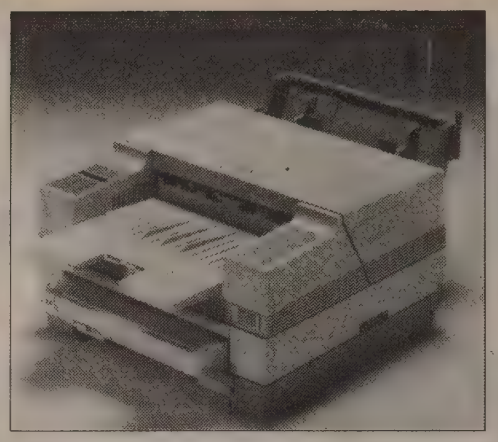

both RS-232C and Centronics ports. ($8495) Mutoh America, Inc., 500 W. Algonquin Rd., Mt. Prospect, IL 60056. (708)952-8880.

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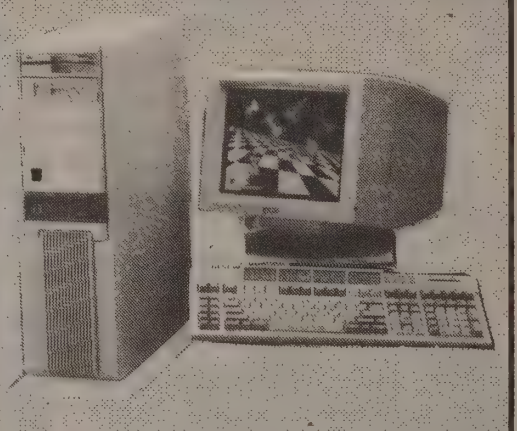

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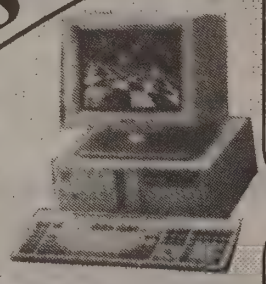

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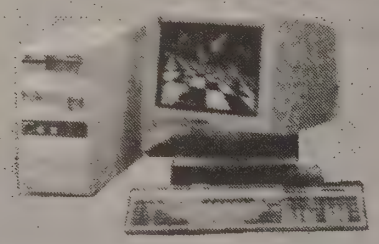

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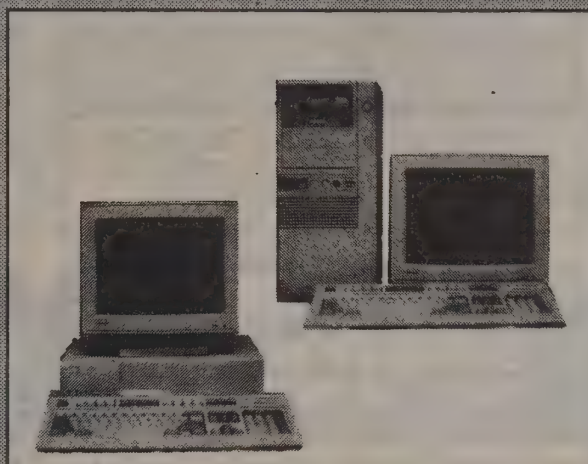

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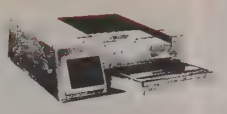

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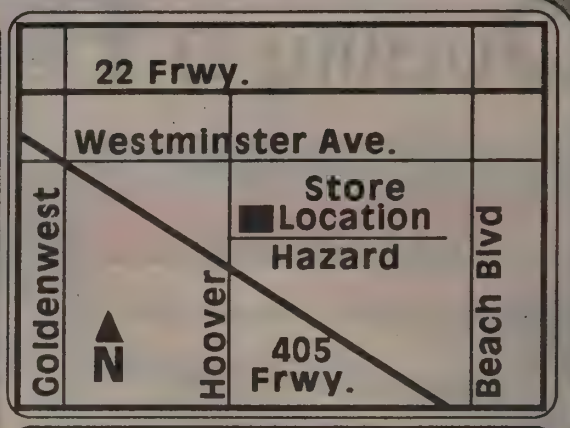

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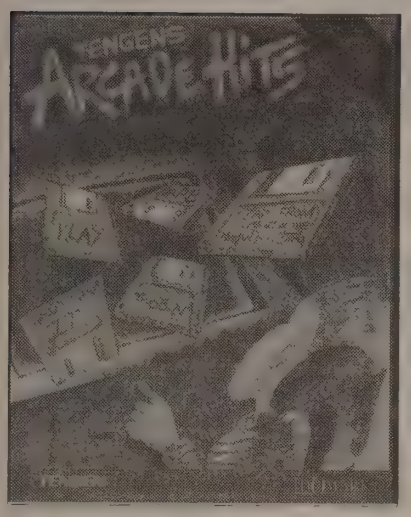

Published By: Domark
Distributed By: Accolade
For: MS-DOS (12+MHz CPU, 640K, joystick or mouse optional; EGA, CGA, or Tandy 16-color graphics), Amiga version also available
List Price: $39.95

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Hard Drivin' II is a sportscar stunt racing game. You can design your own track, and even race against a live opponent on another PC or Amiga connected through a null modem cable.

KLAX is a game of marching colored tiles. As they advance toward you, you have to catch them with your paddle and flip them into one of five bins, to create horizontal, vertical, or diagonal rows of the same color.

Toobin' lets you ride an inflated inner tube down a wild river. You have to avoid obstacles and pick up floating tin cans to hurl at fly fishermen, swamp monsters, and kamikaze penguins that infest the riverbank.

Escape From the Planet of the Robot Monsters is a two-player rescue mission (the player controls are mapped to opposite ends of the keyboard).

APB is a cartoon-style game that puts you in the role of Officer Bob, patrolling the mean streets of the city, in pursuit of Sid Sniper, Freddy Freak, and other offenders. Between car chases you can stop by the Drive-In Donut Shop to get extra time, or visit the Speed Shop to buy extra equipment for your car.

Graphics and Animation: cute
Sound: varied beeps
User Interface: crude
Overall Play Value: nostalgic

Although these games are not copy-protected, neither are they hard disk installable—you have to run them from a floppy drive. (Domark, Inc., 1900 S. Norfolk Ave., Suite 202, San Mateo, CA 94403. 415/513-8929)

TRISTAN: SOLID STATE PINBALL

Programmed By: G. Snowman
Published By: Amtex
For: MS-DOS (2MB RAM, 386 or 486 CPU, VGA or SVGA graphics, Ad Lib and Sound Blaster audio cards supported), Macintosh version also available
List Price: $69.95

The Mac version of this pinball simulation is the best-selling Macintosh game in Japan, a nation that takes its pinball seriously. This MS-DOS conversion, developed in Canada, provides wonderful realism if you have the hardware to support it. Amtek has licensed the design rights to the classic pinball machines made by Bally, Williams, and Gottlieb, and plans to bring more of them to the small screen.

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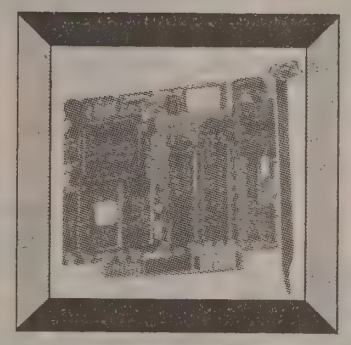

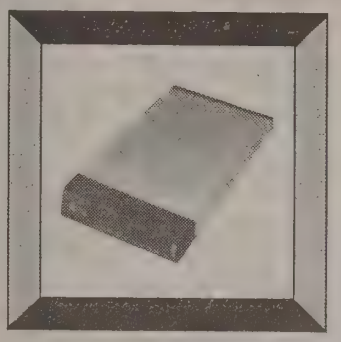

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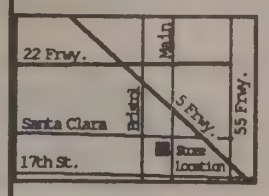

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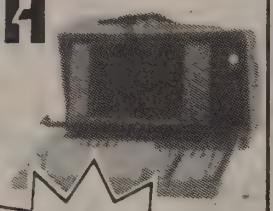

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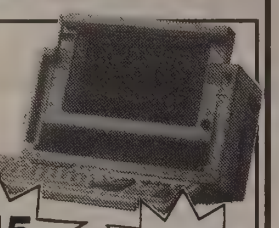

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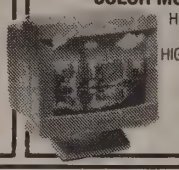

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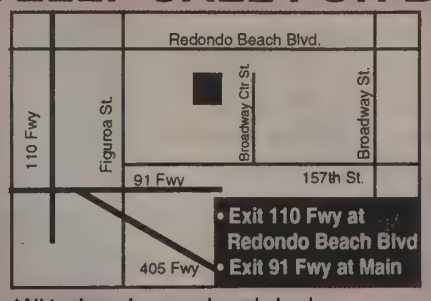

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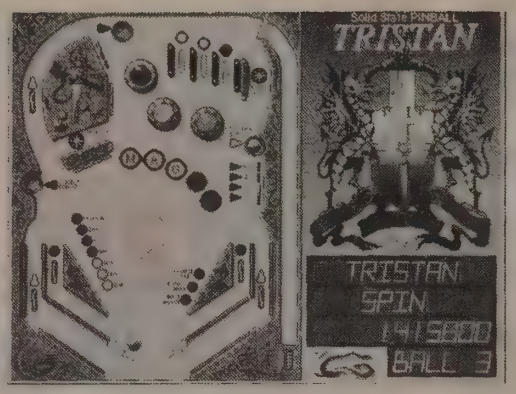


Graphics and Animation: 9
Sound: 9+
User Interface: 9
Overall Play Value: 8

The ball moves exactly as the laws of physics would dictate, and the sound effects (even without an audio card) are authentic. The scoring and bonus system has enough Baroque complexities to delight the most hardcore pinball wizard. About the only objection a potential buyer might raise is that you only get one configuration; this is no pinball construction set.

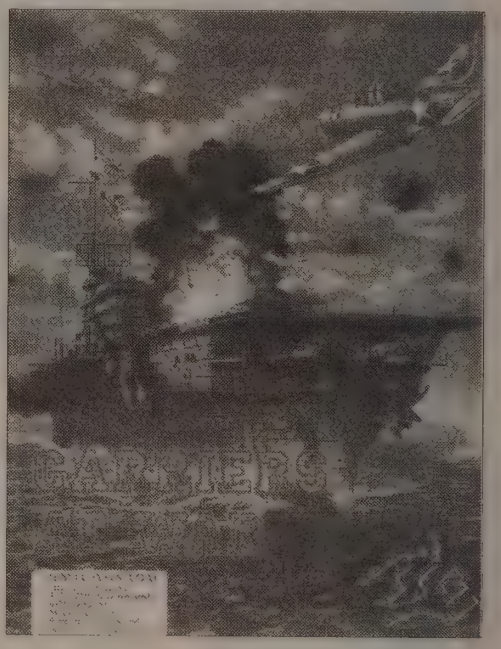
The user interface is a marvel of simplicity. The left and right Shift keys independently control the flippers, the Enter key operates the plunger, and the Space bar lets you "nudge" the machine (at the risk of a catastrophic TILT! alarm).

The program is installed from two high-density disks, and its twenty-seven files require 1546K of hard disk space. You have to input your name and a serial number the first time you run Tristan, and the program requires you to answer a question from the manual every time you start a game. The package also includes a bright, shiny, genuine steel pinball. (Amtex, Inc., 512 S. Castlerock Terr., Sunnyvale, CA 94087. 510/935-2074)

CARRIERS AT WAR

Designed By: Roger Keating and Ian Trout
Published By: Strategic Studies Group
For: MS-DOS (640K, EGA/VGA graphics, supports AdLib or Sound Blaster audio card, mouse recommended), Macintosh and Amiga versions under development
List Price: $69.95

Back in 1984, when the original 8-bit version of this game was released for the Apple II and Commodore 64, the designers lamented the limitations imposed by 64K of memory.



Today they have ten times as much RAM to play with, and they have taken advantage of every bit to create a visually stunning and historically impeccable simulation of the Pacific carrier battles of the Second World War.

The computer can play either side, or mediate a battle between two human players. SSG has been perfecting its artificial intelligence routines for ten years, and the computer opponent is competent and unpredictable. The battles include Pearl Harbor (not much fun for the American side, but a good introductory tutorial), Midway, The Coral Sea, The Eastern Solomons, Santa Cruz, and The Philippine Sea.

The user interface includes a menu bar and a variety of complex, but highly pictorial and functional displays for your fleets and aircraft squadrons. Most tactical decisions can be made by pointing and clicking. For

Continued

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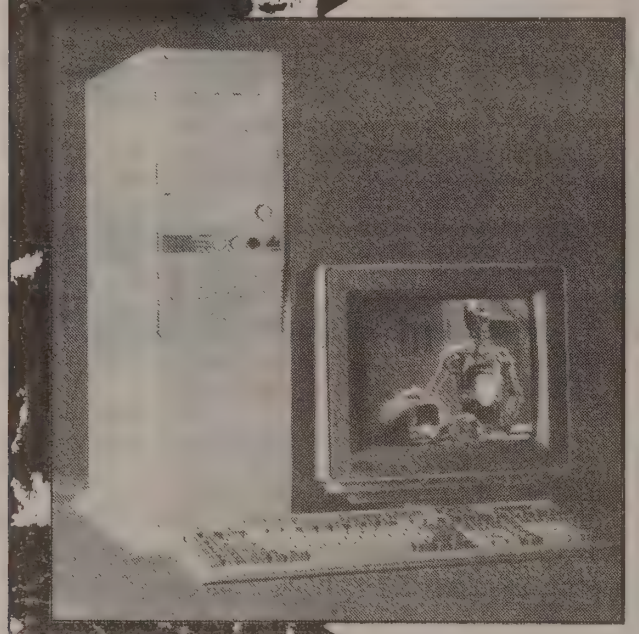

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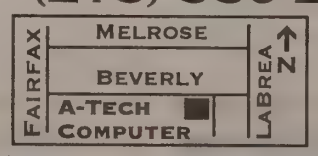

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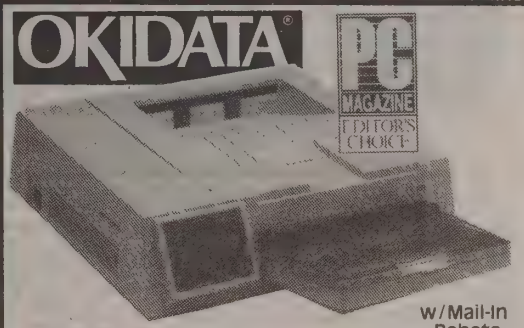

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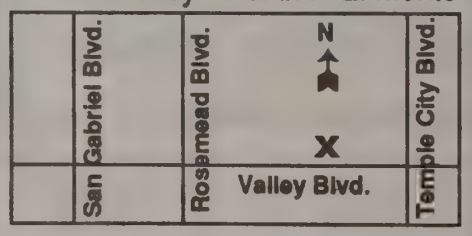

PRODUCT SPOTLIGHT

example, you can set course for a task force by simply clicking on any spot in the ocean—the ships will sail toward that point. If a target is out of range for some of your squadrons, those squadrons will simply not be available on the Strike display.

Combat takes place between individual ships and waves of up to five aircraft at a time. When hits are scored, you can see animated explosions and fires break out. Since pilots on both sides exaggerated the number of hits they scored, the program randomly inflates the damage reports; to find out how well you really did, you have to wait for the final report at the end of the game.

For the American side, the game is a series of sobering lessons. For the first two years of the war, your torpedoes are utterly unreliable. Much of your airpower consists of land-based high-altitude bombers (like the B-17) which had almost no chance of hitting a moving enemy ship.

Graphics and Animation: 8
Sound: 8
User Interface: 9
Overall Play Value: 9

SSG is developing a scenario editor for the game that will be sold separately. This seems reasonable, considering the size and complexity of the package.

The game is installed from two high-density disks (separate 3.5" or 5.25" packages) and takes up almost 5MB of disk space. The 136-page manual is the best SSG has ever produced, with clear, well-illustrated explanations of game functions and a thoughtful technical history of the Pacific war. (Strategic Studies Group, 8348 Monticello Dr., Pensacola, FL 32514. 904/494-9373. Fax: 904/494-9374)

AMIGA SOFTWARE REVIEW

SCENERY ANIMATOR 2.0

Published By: Natural Graphics
List Price: $99.95

VISTAPRO 2.0

Published By: Virtual Reality Labs
List Price: $99.95
Reviewed By: Douglas J. Nakakihara

Scenery Animator and Vistapro are landscape generators (LG) that use US Geological Survey Digital Elevation Model (DEM) data to generate accurate 3-D landscape pictures. The landscape you add—oceans, lakes, rivers, snow, trees, etc.—follows the existing terrain and won't appear where they wouldn't naturally. You can also change the direction of the sun, add a star-filled sky, or even adjust the cloud density. Depending on which LG you use, you can choose locations like Yosemite, Mount St. Helens, Lake Tahoe, and even Mars. Both companies offer additional DEM files. Vistapro allows you to create your own terrains using special IFF picture files as data.

Plotting a path for your camera creates "fly-by" animations. In addition to setting the camera's path, you can set its elevation, pan left or right, and change the type of lens (i.e., wide angle, zoom, etc.). These animations give the feeling of being inside a jet flying over mountains and lakes, through canyons, etc. These programs are also great for creating still background pictures.

Both programs support all of the native Amiga display modes plus 24-bit IFF, but really shine when used in conjunction with Digital Creation's DCTV. DCTV makes possible full-color animations with fast frame rates, which you can send directly to video tape. Both programs provide direct support for DCTV.

Scenery Animator (SA) paints landscapes before your very eyes; lines like brushstrokes appear on the screen, eventually forming the finished picture. This is very interesting to watch, although your patience may eventually run thin. Vistapro indicates what is being calculated, but the picture does not appear until it is completed.

Each program excels in different areas and both are very easy to use. Vistapro seems to have more features and flexibility. However, it doesn't generate clouds like SA does. These clouds are beautiful! But then, Vistapro can generate beautiful star-filled night skies, which SA can't. SA offers an immediate rough display of the terrain, while Vistapro requires you to do a quick render. Also, although Vistapro supplies more DEM data files, SA's data files are larger and cover more land mass. Bottom line is that these are two wonderful programs and at their bargain prices, you can afford both!

If you've felt you didn't have the talent, but have always wanted to make stunning pictures or animations using your Amiga, these programs were written for you. Create breathtaking mountain scenes or strange new worlds. If you have talent too, it's even better! Though not required, an accelerated Amiga and hard disk are highly recommended. (Virtual Reality Labs, Inc., 2341 Ganador Court, San Luis Obispo, CA 93401. 805/545-8515. Natural Graphics, Inc., PO Box 1963, Rocklin, CA 95677. 916/624-1436)

Continued on page 129

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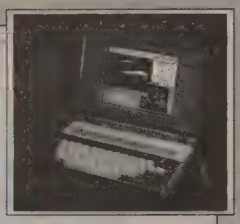

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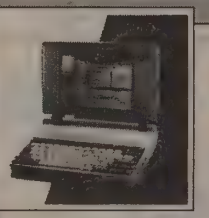

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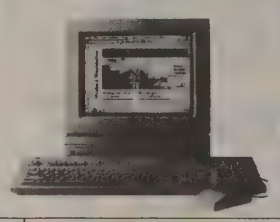

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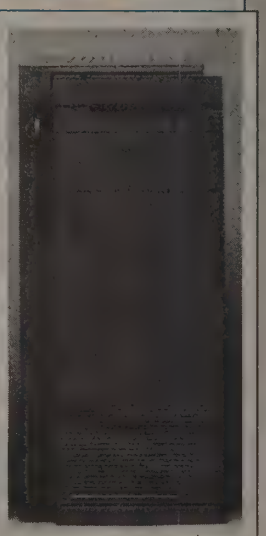

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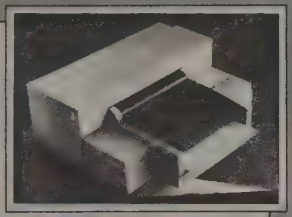

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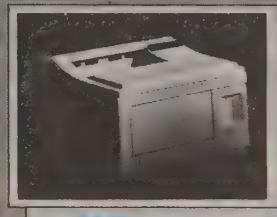

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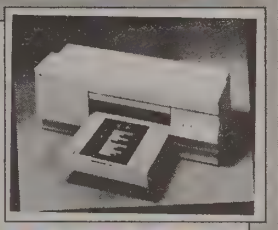

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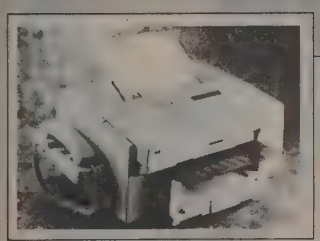

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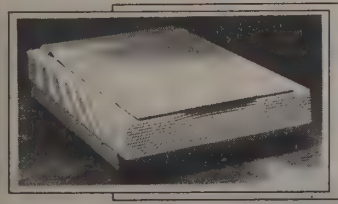

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Continued from page 122

MACINTOSH SOFTWARE REVIEWS

FUNNY: THE MOVIE IN QUICKTIME

SPORTS ILLUSTRATED CD-ROM SPORTS ALMANAC

Published By: Warner New Media
List Price: $39.99 (Funny: The Movie); $59.99 (*Sports Illustrated* CD-ROM)
Reviewed By: Matthew Leeds

Warner New Media has been producing innovative and interesting CD-ROM titles, helping to create and fill consumer demand. Their two latest titles unfortunately bring little if anything to the party, and serve best as examples of what not to do in creating a CD-ROM product.

Funny: The Movie in QuickTime is exactly what its title describes: a direct conversion of Bran Ferren's 1989 movie. Ferren asked eighty-four celebrities and non-celebrities to tell the funniest joke or story they had ever heard. If these are the funniest stories they've heard, they've been stuck in a timewarp since the beginning of the century; some of the jokes are that old. While you can select each joke separately via an index (there are several indexes, all visually pretty on-screen but essentially the same), the only value added to the content is an After Dark module that plays QuickTime movies. Save your money and rent the tape.

The *Sports Illustrated* CD-ROM Sports Almanac is a little better, but not much. The only thing it has over a paperback version of the same information is the ability to search by keywords. While it contains articles from *Sports Illustrated*, athletic awards from 1931 forward, highlights from the 1991 sports season, and other info, there's little of the interactive or educational innovation one would expect to find in a CD-ROM product. Again, unless you've got money to burn, buy a paperback almanac and wait for something better. (Warner New Media, 3500 Olive Ave., Burbank, CA 91505)

MAC SUNRISE SCRIPT RELEASE 2.0

Designed By: Wolfgang Hadamitzky
Published By: Stonebridge Press
For: Macintosh (2MB RAM, requires HyperCard 2.0 or higher, up to 72MB of free

Continued

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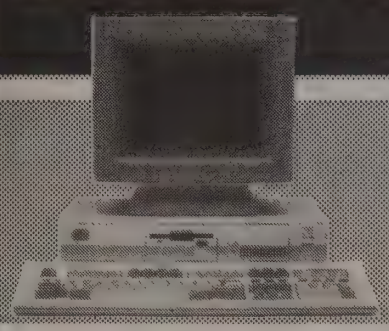

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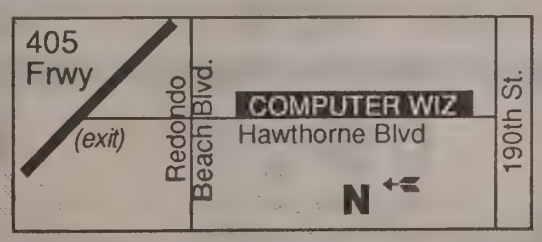

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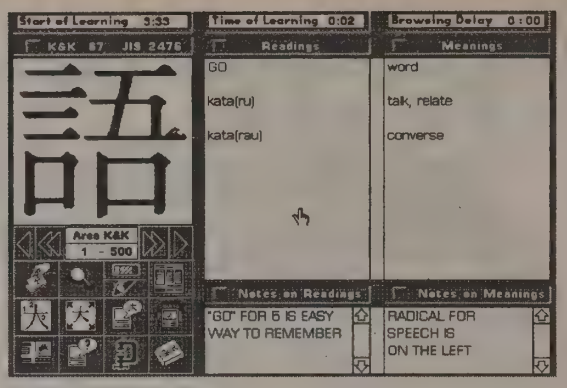

hard disk space)
List Price: $99/$249/$499 depending on configuration
Reviewed By: Mike Markowitz

Learning Japanese presents formidable difficulties to speakers of Indo-European languages like English. The sound system is relatively simple; only fifty basic syllables, compared to hundreds in English. The rules of grammar are quite regular, but correct usage involves delicate judgments about the social relationship between the speaker and the person addressed. Above all, the writing system of Japanese is stunningly complex and quite alien to users of the Roman alphabet. Evidently, the Japanese writing system works; illiteracy is non-existent in Japan, and Japanese actually tend to read faster than Westerners.

Many centuries ago Japan borrowed the Chinese ideographs, called kanji in Japanese. About two thousand of these characters are in general use as nouns, adjectives, personal or place names, and the stems of verbs. Each kanji may have several different readings or pronunciations, depending on its context. Alongside the kanji, two syllabic scripts developed: hiragana are used to write native Japanese words and grammatical endings on words written as kanji, while the katakana are mostly used to write words borrowed from Western languages.

If our writing system had evolved along the same path, we might need to learn two thousand Egyptian hieroglyphics for basic words; Anglo-Saxon runes for pronouns, prefixes, and suffixes; and the Roman alphabet for all words derived from Latin.

Mac Sunrise Script is an ambitious attempt to use the Macintosh to facilitate the learning of Japanese writing. It consists of a set of linked HyperCard stacks. At the simplest level you can use the program as a set of electronic flash cards. You can select your own sets of kanji for study, and add notes to the cards. The program includes digitized sound for each word and can also animate the stroke order, which is important for writing kanji correctly. You can set the program to select and display kanji randomly.

Since there is no alphabetical order when you don't have an alphabet, the program includes a sophisticated Search capability based on "graphemes," or common graphic elements.

There are separate stacks for reviewing the hiragana and katakana (which you're supposed to know perfectly by the second or third week of learning Japanese).

The publisher offers three versions, with one hundred, five hundred, and two thousand kanji, respectively. The Japanese Ministry of Education expects kids to master a prescribed list of some eighteen hundred kanji by the time they graduate high school.

Despite its excellent instructional design, Mac Sunrise Script (particularly the full 72MB version) seems impractically large and expensive for all but the wealthiest schools. For an extra $600, the publisher will pre-install the program on a 105MB external hard drive. Site-licensing arrangements can also be negotiated. HyperCard is a rather clumsy environment for such an ambitious project; it could have been much smaller and quicker if it had been written as a standalone application. A more appropriate medium for such a huge application might be CD-ROM. (Stonebridge Press, PO Box 8208, Berkeley, CA 94707. 510/524-8732)

Continued on page 138

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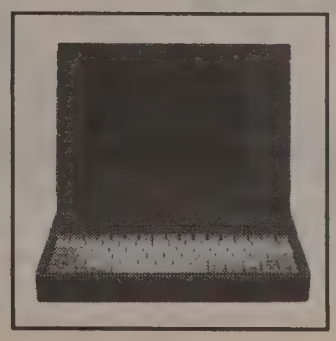

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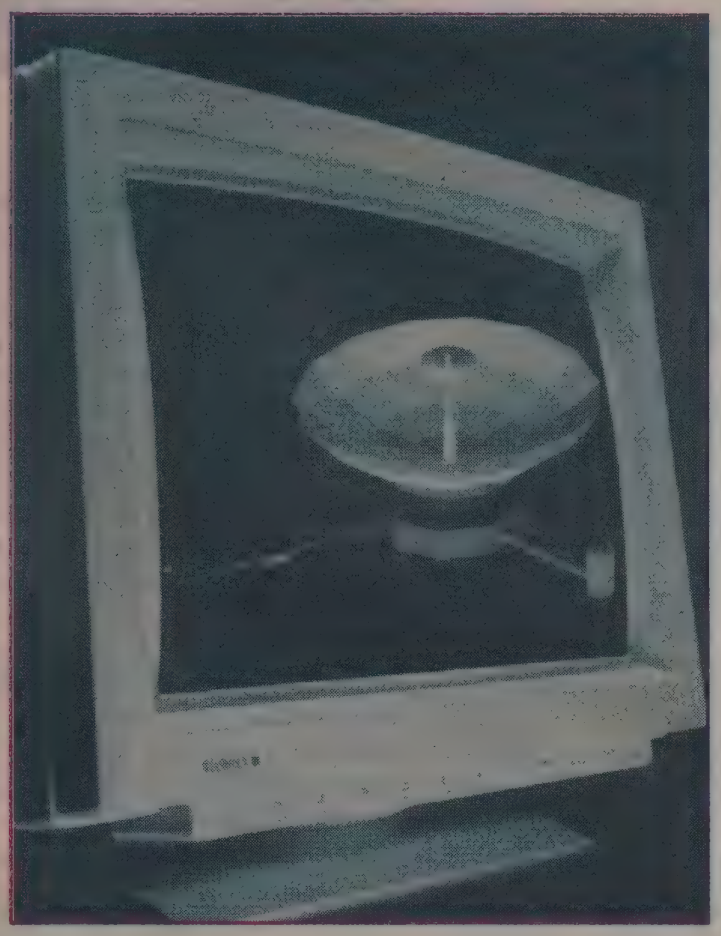

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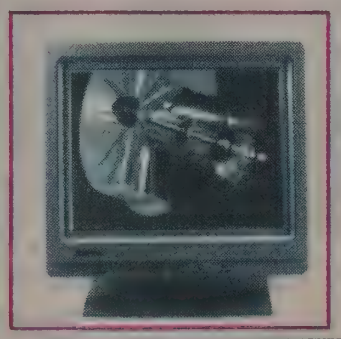

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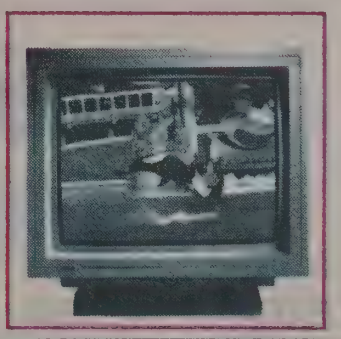

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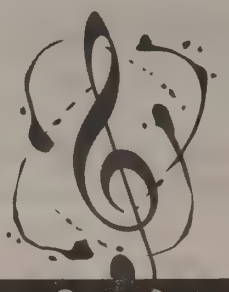

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PRODUCT SPOTLIGHT

Continued from page 130

BOOK REVIEWS

DVORAK'S GUIDE TO PC TELECOMMUNICATIONS, SECOND EDITION

Authors: John C. Dvorak and Nick Anis
Published By: Osborne/McGraw-Hill
List Price: $39.95 (softcover with diskette, 1128+ pages)
Reviewed By: Bill Gram-Reefer

Intended to be "a complete overview of the world of telecommunications," the second edition of *Dvorak's Guide to PC Telecommunications* is more than a resource book; it is a demonstration of the tremendous development that the computer publishing business and the online world have experienced in only the last couple of years.

You get a good feel for the *Guide* right away by working your way from both ends of the book into its middle. Pasted on the inside front cover, for instance, is a bright yellow diskette jammed with popular PC software including communications, text-processing, compression, and virus protection programs. In the back are money-saving coupons in addition to a first-rate, twenty-five-page index.

The book is divided into seven sections. There is an overview of telecommunications, a primer on modems and software, a summary of bulletin boards and related shareware, details on services and advanced connectivity, information for advanced users, a well-thought-out and presented 111-page tutorial on how to use the key programs included on the diskette, and appendices.

Eight appendices are included. These range from the perfunctory (160 pages of Tymnet, Sprintnet, and CompuServe access numbers; a listing of descriptionless bulletin boards and their numbers; along with a twenty-page directory of modem manufacturers) to more useful fare, including a helpful glossary, cable diagrams, ASCII codes, the AT Command set, and the book's crowning glory, a listing of over one hundred "emoticons," those odd shorthand symbols used to indicate humor :-), smirks :-1, or a wink ;-), if only to illustrate just how clever you really can be when communicating with but a keyboard.

Overall, the *Guide* is a classy presentation of ten years' worth of wit and PC wisdom. The all-new second edition of *Dvorak's Guide to PC Telecommunications* offers more value than most computer books. (Osborne/McGraw-Hill, 2600 Tenth St., Berkeley, CA 94710. 510/548-2805) ■

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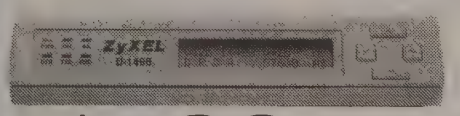

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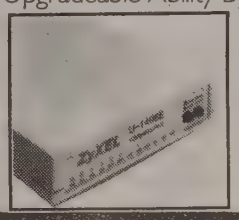

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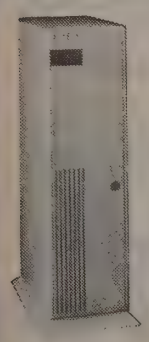

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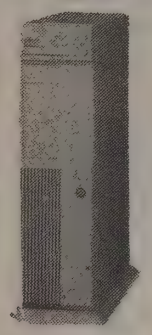

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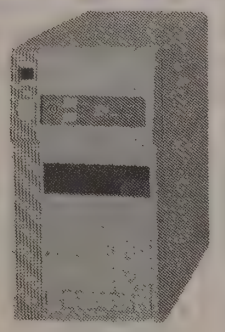

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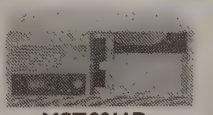

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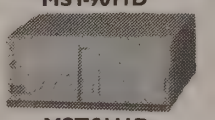

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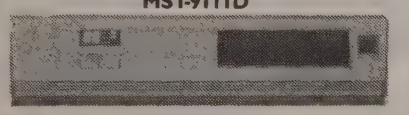

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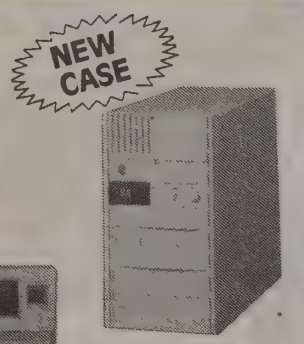

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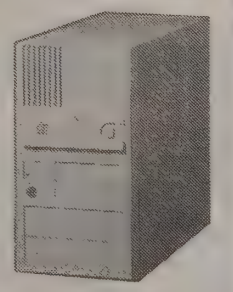

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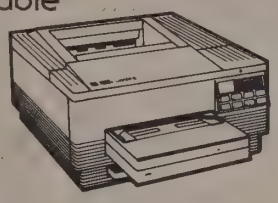

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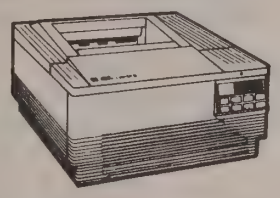

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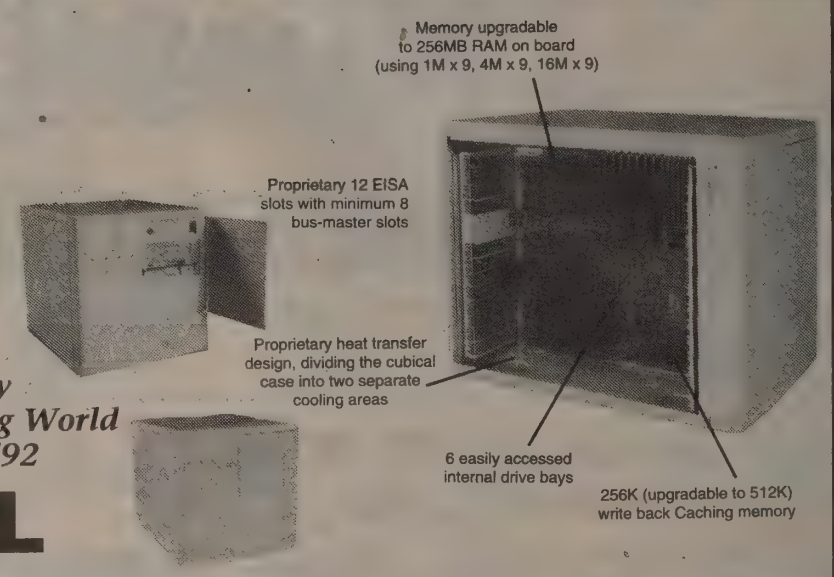
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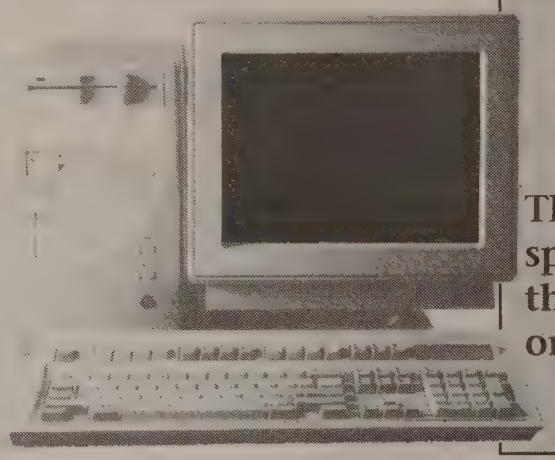

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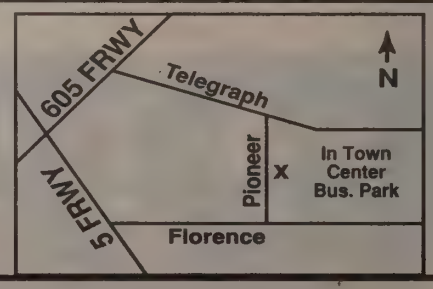

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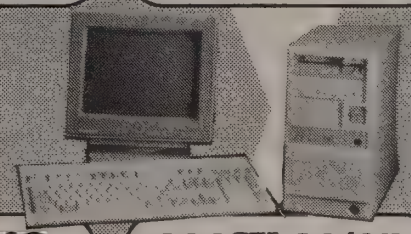

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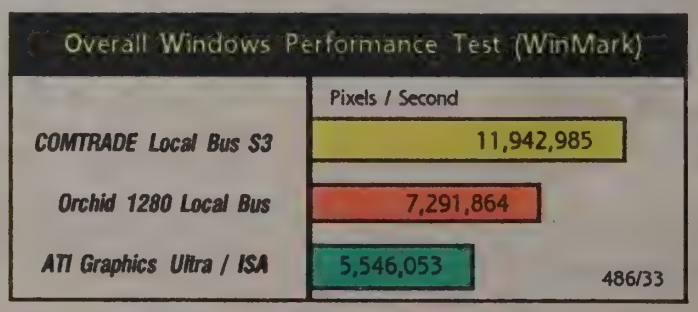

Source: Computer Shopper, July 1992. Local Bus Video Review. Page 184.

486 EISA Local Bus

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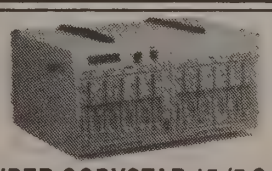

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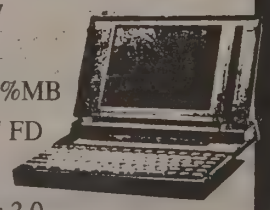

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Continued from page 96

Times-12, you must also have Times-24 or Times-48 available. Four different typefaces with the required sizes are included with the package. Additionally, unlike ProWrite or Final Copy, KindWords allows you to fully utilize the AmigaDOS 2.0 outline fonts for on-the-fly scaling!

EXCELLENCE! 3.0

This was the last of the four programs I received. After using it for a while, I was quite surprised—based on all of the advertising, you would think that ProWrite and Final Copy were the only game in town.

Not!

Excellence! has been around a long time, and this new version is the most mature of any of the four word processors. It comes with a nice, thick three-ring user manual too.

What do I like about it? Well, it's the only package among the four to include a glossary function, automatic table of contents and index generating, multiple headers and footers, footnote support, a grammar checker, a built-in macro language, and multiple bookmarks.

The glossary is basically a table of words or phrases that can be inserted into a document very quickly. For example, if "CBM" were defined as "Commodore Business Machines, Inc.," you could select "CBM" from the glossary list and insert the full text into your document. You can even assign "hot keys" to entries (e.g., Alt-L), so a simple keystroke will insert the entry. The glossary entry even saves the font, style, and ruler settings. Glossary entries can also execute a built-in macro language which can in turn run AREXX scripts.

Unique to Excellence! is its virtual memory feature. This allows you to work on a document that's larger than RAM would normally permit. It does this by automatically swapping data between your disk storage and RAM. The manual indicates that this feature permitted a 976-page document to be edited on a 2.5MB Amiga 1000 with a 20MB hard drive.

Like ProWrite, Excellence! also leaves an AppIcon on a 2.0 Workbench for graphical loading of documents.

CONCLUSIONS

It is obvious that developers of these products have looked at the mainstream PC wordprocessors—WordPerfect, Word for Windows, etc.—and tried to build some of those features into their products. I would still like to see support for tables, an automatic way to create and use preset text formats (a.k.a. styles), and some sort of minimal drawing capabilities.

Sure, none of these comes close to matching the features of Word for Windows, but they don't list for $495 either! At list prices all near $100, these word processors are absolute bargains!

If you really need full PC compatibility, you can buy an MS-DOS emulator program (one comes with the latest version of CrossDOS) and run WordPerfect 5.1. On an '030-based Amiga, you'll get tolerable speed. Commodore's A2386SX bridgeboard offers a faster, but more expensive, alternative.

I would kill for an Amiga word processor that had all of the abilities Word for Windows provides, but I really don't need all of its features. Give me a program that does half of what Word does and doesn't cost an arm and a leg, and I'll be happy as a clam! These products appear to be heading in the right direction. ■

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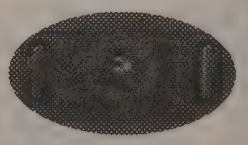

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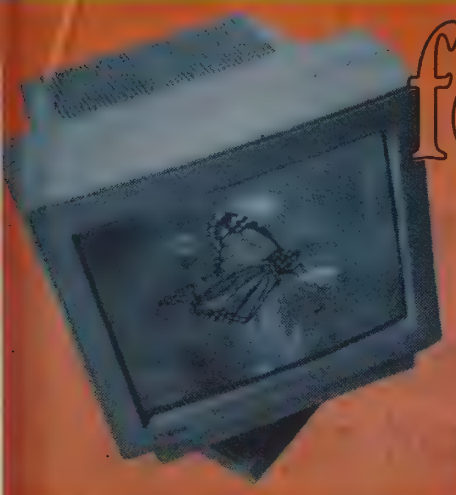

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Looking Twice At The Portable Desktop

SCSI Monitors

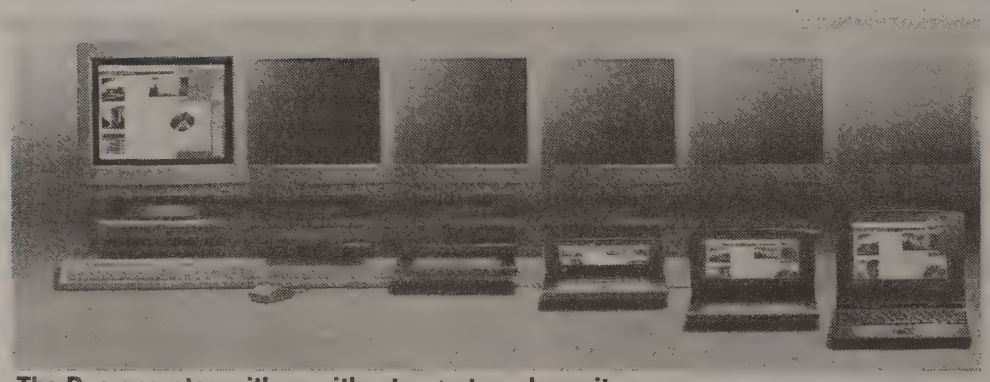
BY TONY REVEAUX

Apple's new Macintosh PowerBook Duo with the Duo Dock, and Mirror's ViewPort SCSI display, are both at the leading edge of desktop computing. They illustrate how the desktop is traveling, expanding and reconfiguring itself as the personal computer responds to the ways we really need and want to work.

They are also symptomatic of how the edge hasn't quite reached the full solutions.

LOOK WHO'S DOCKING NOW

As much as I admire the entire PowerBook line, handling the 4.2 pound 33-MHz '030-based Duo was a revelation. Without an internal floppy disk drive and many other details, but built on an aerobic-light magnesium frame, the external envelope—with recessed keys, smaller 19mm trackball and rounded corners—seems like Apple designed it in a wind tunnel. With the screen flipped up, I could hold Duo in my left hand and (sort of) type with my right hand. Not for very long, perhaps, but the experience gave me the vision of what a fully functional Personal Digital Assistant might be like some day.



The Duo operates with or without an external monitor.

The PowerBook Duo 230, and the "slower" 210, are as fast, free and independent as a teenage runaway—which is to say, sooner or later they'll need to come home. Apple's ingenious Duo Dock, supporting a monitor of almost any size, acts like the VCR to the Duo's videocassette. Flip down the screen of the PowerBook Duo, insert it in the slot of the "mothership" Duo Dock, and in it slides automatically. Boot it up, and it's showtime. With the Duo Dock's internal SuperDrive, external connectors and internal battery charger, and with a full-size monitor and regular keyboard, you have a full desktop Mac, running off the PowerBook Duo's processor and memory. You can pick up in the office right where you left off in the field.

What's missing? The PowerBook's screen is not available, thus denying the user a two-screen system. For most users, one screen of data and activity is as much as they can handle. Increasingly, as software becomes more and more feature-rich and the range of applications, networking and responsibilities increases, a larger size monitor and/or a two-monitor system can offer some advantages. Many managers and other businesspeople need to work with several applications simultaneously, and System 7 makes that much easier to do.

SCSI MONITORS

For the other PowerBooks, and many notebooks and portables, the desktop answer can be a SCSI monitor—a self-contained, full-size monitor that can accept the PowerBook input through a connecting cable, without an intermediary adapter box and/or PC. Punch in the plug, and the PowerBook becomes your main Macintosh for full-day, round-the-clock office work. (A good roundup of these SCSI monitors can be found in the 10/5/92 issue of *MacWEEK*.)

A new addition is the Mirror ViewPort 15-inch SCSI monochrome Portrait Display. It easily connects to the PowerBook via the SCSI

A SCSI monitor—a self-contained, full-size monitor that can accept the PowerBook input through a connecting cable without an intermediary adapter box and/or PC—lets the PowerBook become your main Macintosh for full-day, round-the-clock office work.

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November 1, 1992

Hello again *to all our clients and graphic professionals. We have some great news! We will be moving to a new building with on site parking–no more driving around the block to find a spot! And best of all, it's right across the street! We will also be building a new training center on the second floor for both CAD and 3D studio.*

There are a few new products to tell you about this month including the new MicroTek IIxe 1200dpi color scanner which includes FREE Aldus PhotoStyler, an $800 value. MICRONICS also just came out with the first VESA standard Local Bus 486. Please don't waste your money on a non-vesa 486- call us for a competitive bid on your next workstation.

DEMO DEALS for November! As an authorized dealer for many manufacturers, we rotate our demonstration equipment every few months. This months specials include a Hitachi 20" SuperScan + for $1195, Presenta 20" Monitor for $1090, & Calcomp Pacesetter 2036 "E" size pen plotters for $3490. Plus, we carry many other high-end CAD boards, digitizers ect.

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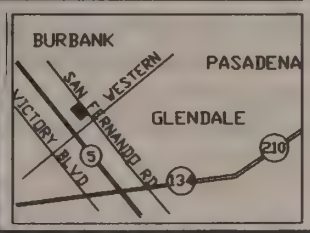

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port (no special video adapter required). Using the supplied cable, the display may also be connected to any Macintosh model with a SCSI port, including the Macintosh Plus and Macintosh Classic. The built-in 20MHz 68000 microprocessor handles all video processing, and the on-board QuickDraw acceleration enhances overall display performance. The Mirror ViewPort also features a screen refresh rate of 72Hz, resolution of 640 x 870 pixels at 80 dpi, two SCSI ports and external SCSI address and termination switches. Front-mounted on/off switch, power indicator light and brightness control provide easy startup and display adjustments. The Mirror ViewPort is priced at $799 (direct). Mirror's ViewPort software permits the use of both screens simultaneously.

You can have the best of both worlds. You can either do all your work on the big, full-page crisp display of the ViewPort, or, for instance, use the PowerBook screen for the report you're writing while the spreadsheet or page layout application is in full up on the ViewPort.

RESOURCES

Apple Computer, Inc.
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Cupertino, CA 95014
(408) 996-1010

Mirror Technologies, Inc.
2644 Patton Rd.
Roseville, MN 55113
(612) 633-4450

WORKING WITH MULTIPLE MONITORS

This is hardly news—it's been there almost as long as the Mac has been around—but the Monitors Control Panel lets you specify the positions for multiple monitors. You can click and drag the larger one to either side, or on top of the smaller one, to match your set-up, or—if they are both the same size, you can give them different identification numbers.

The wonder of using two or more monitors is the way your desktop real estate expands. Move your mouse, and the cursor just glides through space and emerges in the screen of the other monitor. Tear off a tear-off menu from the application menu, and you can drag it right into the other screen. When this was first achieved by some third-party developers a few years ago, it was the wonder and envy of every other platform.

The desktop menu can be dedicated to only one screen at a time. To change that, you just click and drag the miniature menu from one rectangle on the Monitors Control Panel to the other and restart; the menu will appear on the newly-selected monitor. If you do a screen capture, it will capture the screen that hosts the desktop menu.

If you're involved in desktop publishing, multimedia, scientific applications and other complex work, and are thinking of expanding your space, a larger monitor—such as a 20"—is a good solution. But taking a clue from the professional graphics workstation world, one of the best configurations is a 13", 14" or 16" color display and a 9" or a 15" monochrome portrait display. Two screens like those may cost much less than a single high-resolution 19" or 20" display. Consider how you *really* like to work. Some people find trying to juggle all the menus and display windows on one screen makes everything too cluttered. Others find using two screens like watching a tennis match. For my work, I find that the combination of a Mirror 16" Trinitron Multiscan HG and a 15" ViewPort is just about ideal.

The Mirror ViewPort connects to a PowerBook through the SCSI port.

NOT A STANDALONE

There are some things you should know about SCSI monitors, and about dual monitor set-ups in general.

First, though it may seem a logical conclusion, since SCSI monitors have their own processor and power supply, that you can use them with a Mac, such as a IIcx or IIci, without needing a video card in the box. Wrong. Not only do you need a card, you also need another monitor for the computer. This is true of virtually all brands of SCSI monitors. They have been targeted to the PowerBook and notebook market, and the vendors didn't anticipate that they might come in very handy for users who need to substitute a monitor, for whatever reason.

A good processor is a terrible thing to waste. What would it take to enable a SCSI monitor to be able to pull a little more freight around the office? It's not a hardware problem. In the current configuration, the SCSI interface puts out a call for another monitor device, and—if it doesn't get an answer, it remains inactive. According to David Ewing, an engineer at Outbound Systems—who produce the Outrigger SCSI monitor, and OEMed the development of Mirror's ViewPort—all that's needed is a software monitor recognition emulator, sort of a patch, to "fool" the SCSI monitor into thinking there's another screen over there. However, that task is not high on anyone's list at the moment.

ANOTHER PROBLEM...

The other thing is that practically all monitor manufacturers design their displays for single-user, single-monitor installation When you put two of the monitors cheek-t cheek, the electromagnetic radiation from t CRTs causes the weaker one—or both—exhibit a waterfall-like rippling distortio They are simply not shielded for the sidewa radiation that graphic workstation and vid post-production ensembles generate.

The two Mirrors I use are no exception and it would be no different if they we RasterOps, Radius, etc., or almost any oth brand. In this case, the ViewPort is strong with its processor, so 18" is about the clos that you can have them together before t Multiscan starts rippling.

I cheated. By turning my Mac IIcx CPU b on its side between them, I formed a shieldi wall that gives me less than a 9" tube-to-tu separation. Chuck Walker, a Palo Alto-bas multimedia designer and producer, fou that the two Apple 13" high-resolution R monitors driven by his Quadra can be bez to-bezel without any distortion. He spec lates that the Sony CRTs throw most of th radiation back through the neck of the tu instead of to the sides. Ewing said that thinks the Sonys don't radiate that much ar way. Unfortunately it won't make much d ference if a monitor has the "Full Swedish" ergonomic shielding, since it's a different le of radiation that causes the distortion.

You may also hear the urban legends th aluminum foil or cookie tins will act as shiel ing walls, but they won't.

SCSI monitors should be able to act standalones, and any two monitors should able to kiss and make up. Engineers—to yo stations! ■

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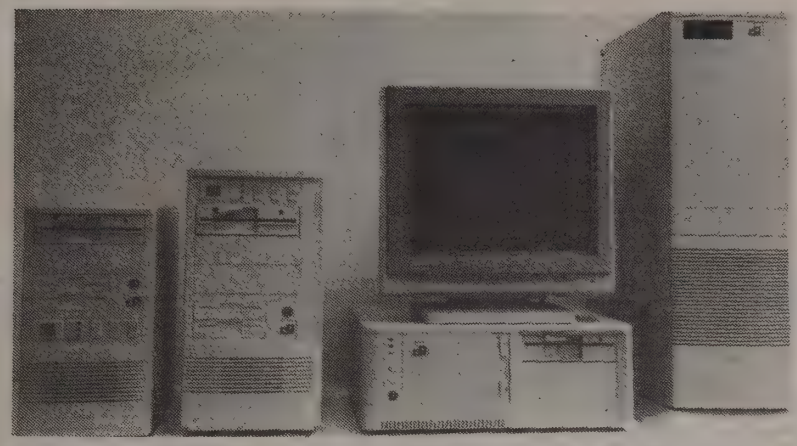

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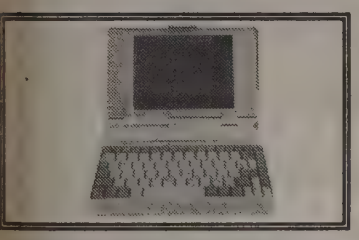

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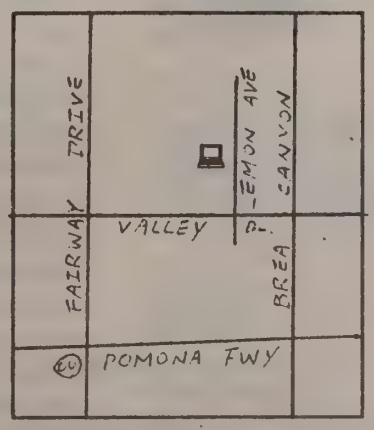

BMUG For Beginners

What To Do Before (And After) You Buy Your First Ma

BY DAVID MORGENSTERN

I have dedicated this month's column to new users and new users-to-be. You might attribute this to all the new members that have called the BMUG HelpLine, valiantly attempting to correctly format their first computer-generated term paper. You might imagine that I was impressed while talking to the cream of new users, the ones with heads on their shoulders, the ones that come to BMUG meetings *before* they've purchased their first Macintoshes. These reasons would have been sufficient to move the column into the beginner's lane. But the real reason is self-preservation, pure and simple.

B M U G

Last month, my sister received her first computer, a hand-me-down Mac SE from my father. This was an event of great import, good cheer, and the possibility of requiring a twenty-four-hour on-call computer support service. My father (identified as the system integrator in this case) has been handling most of the support, but I've been consulted on a regular basis. So I'm going to hand her a copy of the column while it's hot off the press.

BEGIN THE BEGINNER

Here are eight wise sayings to keep in mind when you're just getting started with your Macintosh. I don't know if anything or anyone in the computer world can stand much sage advice, since most technology and wisdom is flat and stale after a year and a half. But these maxims have endured through the years and operating system revisions.

• *Even a salesman sometimes says something clever.* A computer is a major life purchase, comparable to a house, or a pussycat. The computer is a silicon extension for your brain, and you will spend thousands of hours bonded together, your face in the interface. Just as a small pebble stuck in your shoe can give you a blister, a difficult-to-use computer can seem like the devil. Your time and effort are the true investments you make with a computer.

Since most computers are incompatible, you can't simply move your computer software and the investment they represent to another house in a different neighborhood. So your first decision is a vital one—which computer should I buy? Don't blow it! Would you entrust all your hopes and dreams to a single conversation on the sales floor? Yet that's how many first-timers choose their computers.

Instead of listening to just one or two voices, talk to as many people as possible about their computers. Go to the library and paw through some current issues of magazines that specialize in the types of computers you're interested in. User group meetings are a good place to meet folks that are already doing the things that you want to do. The final step is to try the machines out in the stores.

• *A computer without software is only an expensive doorstop.* People often come to me with the question, "I have this much money to spend—which Macintosh should I buy?" They get red in the face when I tell them that they have flunked out of class on the first day. They forgot the Real Cost of a Computer Formula:

Computer = (Sum of All Hardware) + (Sum of all Software) + (Total Sales Tax).

Your computer needs software to do anything, including the things you have in mind. It's not like an optional feature on an automobile—a sun roof or air conditioning—you must buy some commercial programs for your computer.

• *Even the person with 128MB of RAM needs more.* It's always better to buy more computer, more memory and more hard disk storage than you can afford. Although this sounds like a joke, it's true.

All new computer technologies need speed and space. I remember a BMUG meeting six years ago when founder Reese Jones stated that anyone needing more than a 20MB hard disk drive was a major software pirate. Today an 80MB drive is too small for most users.

Fortunately, the cost of hardware keeps falling, but never as fast as you need it to. Upgrades almost always end up costing more than if you had bought the features as original equipment.

• *No matter that nothing happens, the Tour will give you a story to tell.* One of the disks that comes with your Macintosh is a guided

Continued on page 159

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A computer is a major life purchase. The computer is a silicon extension for your brain, and you will spend thousands of hours bonded together, your face in the interface. Just as a small pebble stuck in your shoe can give you a blister, a difficult-to-use computer can seem like the devil.

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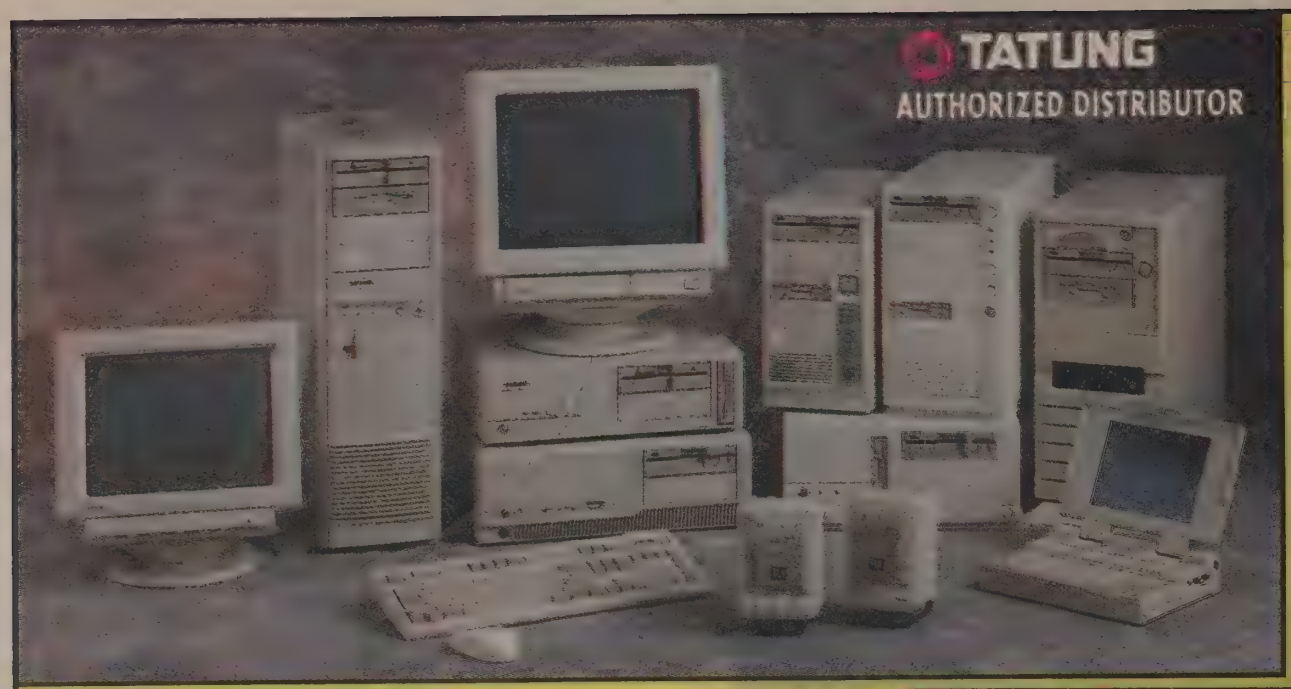

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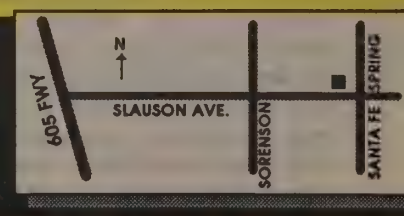

Continued from page 154

tour disk. It has animated lessons for you to follow, to learn how to use the mouse, the Finder, and other important elements of the user interface. The first Macs came with this introductory material on an audio cassette.

The Tour is easy to dismiss. "I don't need to bother with this stuff. I picked up everything from the demonstration in the store..." I know that the BMUG HelpLine staff and volunteers, as well as technical support technicians around the country, will plead with you to take the Tour in its entirety. The lessons teach you the actions needed to maneuver around the virtual desktop, but also the language of the Macintosh interface. A Drag can be a good thing.

Your computer needs software to do anything, including the things you have in mind. It's not like an optional feature on an automobile—a sun roof or air conditioning—you must buy some commercial programs for your computer.

• *Where users truly wish to go, there their cursors will manage to take them.* Don't waste time worrying that you don't know enough to get started with your Macintosh. Just jump in the water. It's cold, but you'll get used to it. And no, playing games does not count toward class credit in Macintosh 1A. I suggest that new users start with word processing. Send a letter to a loved one—they won't care if it's not formatted perfectly. Just do it!

• *The system fated to crash will crash when it's turned off.* Your system will crash and you will lose your data. This is not a horrific fantasy story to frighten the child users. It's a fundamental part of computing. Save and back up your data.

There are many good backup utility programs and strategies. Unfortunately, they all require that you actually employ them, and most users don't. We see and hear their tears on the BMUG HelpLine. The bare-bones minimum is to back up current work onto a floppy disk. I do this *every few hours* as I work, since the power often blows in our apartment.

One way of advancing this process is to have the files you're working on conveniently placed on the desktop so they're ready for a backup. I keep all my new files in a folder called the Current Folder, so they're easy to grab and drag to a floppy. Every month or so, I clear it out by moving the documents to subject-specific archival folders I've created. New users tend to keep their files in the same folder as the application that created them. This makes backing up more difficult.

• *Learning is not obtained by the shy.* Ask lots of questions. Keep asking a question, until you're satisfied that you completely understand the answer. Then ask the next one. This is especially true at a user group meeting. There will be many informed people that can help you with your specific problem, and many more people in the audience with the same question. They will also receive an answer because you were brave enough to speak up.

• *Join BMUG and your local user group.* For the past eight years BMUG has been a place where people can share their knowledge, help other people, and learn new things about new technologies and themselves. With your support, we will continue to give people good information through our meetings, HelpLine, Special Interest Groups, Bulletin Board System (BBS), Newsletter, software libraries, and publications. A user group is the one place where you never have to justify your throwing money at your computer. Someone there has spent twice as much as you—and yet has a smile on their face. Unbelievable, but true!

TIPS OF THE MACINTOSH MASTERS

I asked some BMUG know-it-alls to share a tip or two for beginners. Here are some of their efforts.

• **Bernard Aboba**, author of the *BMUG Guide to Bulletin Boards and Beyond*: "My best tip is to beware of Faxmodem Inits (Extensions). They seize the serial port, and won't let go. Use an Extension manager, and keep those pesky programs disabled until you need 'em."

• **Eric Gundrum**, BMUGer and MicroPhone sage: "Don't ever begin the name of a file with a period, which causes the Mac to interpret the file as a driver (probably not what you want). Opening such a file can seriously corrupt your system, causing unexplained crashes and other oddities. It is unfortunate that most applications don't protect against this."

• **Dana Keil**, BMUGer and Microsoft Word

Continued on page 177

What Is BMUG?

BMUG is an educational, nonprofit, consumer advocacy group organized to share information and provide critical direction to users and developers in the computer community worldwide. It is an independent advocate, not affiliated with any manufacturer, delivering trustworthy information and useful products.

Like any growing organization, it is many different things to its thirteen thousand international members. BMUG supports many Special Interest Groups (SIGs), a Bulletin Board System (BBS), free HelpLine, software library, weekly meetings, publications, and much more. BMUG also puts out a semi-annual 400+ page book that we call our "newsletter."

Our motto continues to be: *We're in the business of giving away information.*

Come and join in the dialogue at the BMUG main meeting every Thursday evening, 6–9 pm (or whenever we finish), in the Physical Sciences Lecture Hall on the UC campus. BMUG West is a meeting held monthly in the Exploratorium, San Francisco's science museum.

The BMUG Office, 2055 Center St. (a half block from the BART station) is open to the public from 9 am to 5 pm. Please come by and say hello, meet other members, and hang out.

The BMUG HelpLine, (510)540-1742, and our fax number, (510)849-9026, provide technical assistance and telephonic hand-holding during business hours (11 am–5 pm). If your question can't be answered on the spot, we try to get you in touch with someone who can help. Of course, not every problem can have a happy ending—but we try.

BMUG has one of the most up-to-date, comprehensive software libraries around with hundreds of disks filled with the latest versions of public domain or shareware programs, and HyperCard stacks. New disks are unveiled almost every week at the Thursday general meeting. BMUG also brings you the *TV-ROM*™, a fantastic collection of public domain QuickTime videos.

Our sixteen-line BBS offers many of the latest versions of files in our software library as well as news, private mail, rumors, etc. The BMUG BBS is part of the worldwide EchoMac Network on FIDOnet (161/444); by calling a local FIDOnet BBS in your area, you would then be able to get in touch with us wherever you are, as well as send mail to users everywhere! With our multiline capability, you can have access to BMUG almost twenty-four hours a day. It's easy to use, fun, and a great resource.

BMUG can be found on most electronic services. BMUG can also be reached through the international USENET network through bmug@garnet.berkeley.edu.

To get some further information about BMUG please write to: BMUG, 1442A Walnut St., #62, Berkeley, CA 94709. If you prefer to phone our business office call (510)549-BMUG, or fax (510)849-9026.

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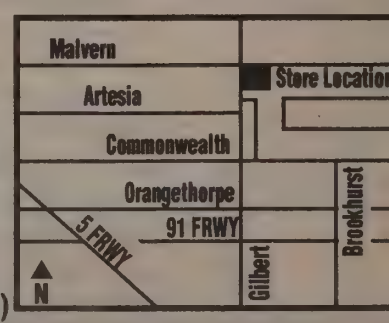


MacRenderMan—A World Unfolds

Tools For Creating And Manipulating Images

BY MATTHEW LEEDS

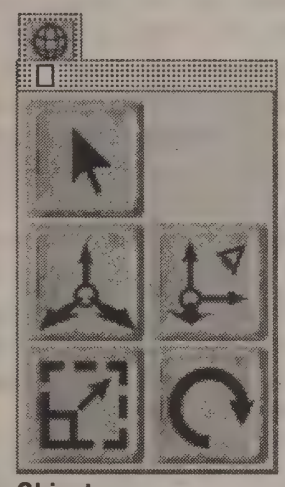
A little less than ten years ago I got my first computer. Those first few months I spent just about every waking hour working with that machine, learning how it worked, feeling as if a new world had opened up for me—as indeed it had. I ended up changing my profession, learning a new set of skills, just so that I could spend more time working with that wonderful new contraption. Pixar's MacRenderMan creates that same sort of feeling.

There are many ways to define RenderMan. It's a programming language which specifies a comprehensive way to describe objects, scenes, lights, and cameras, so that photorealistic images can be created from them. It's a collection of procedures to transfer the description of a scene to a rendering program. It's a rendering program that turns RenderMan Interface Bytestream (RIB) files into picture files. RIB files are to images what PostScript files are to the printed page.

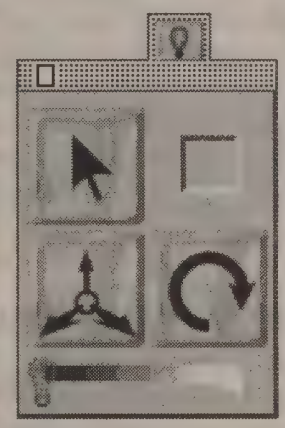
Just as you probably don't write your own PostScript files directly (you use a word processor or DTP program to model your pages onscreen before you send the file to be rendered, or printed, by a printer that contains a PostScript rendering engine) you don't write RenderMan files directly. You use a modeling program to create and/or compose objects and their surface characteristics, lights and their characteristics, and a point of view—also known as a camera. The modeling program then either sends its data directly to a rendering program, or writes a RIB file that can be rendered later.

What's remarkable about RenderMan is that it can describe a scene in such detail that it cannot be distinguished from a photograph. While most rendering work is not quite to that level of detail, the results of RenderMan-based work are used every day. Cosmair, Inc. a cosmetics company (L'Oreal, Lancôme) uses ShowPlace and MacRenderMan to create photorealistic prototypes of their product packages. RenderMan technology was used in *Terminator 2, Beauty and the Beast,* and *The Abyss.*

Surfaces



Objects



Lights

Cameras

SHOWPLACE

Perhaps the simplest approach to RenderMan is through ShowPlace, Pixar's program for arranging objects, lights, and cameras and rendering the results via RenderMan. While ShowPlace does not include a modeler (you can't create your own objects) it does come with an extensive collection of objects. There are also many third-party collections of object files (and other good stuff) available.

ShowPlace uses four separate toolboxes: the Object toolbox is used to select, move, resize, and rotate objects; the Surfaces toolbox is used to select surfaces, apply looks (see below), and set attributes of looks; the Lights toolbox is used to select, move, and rotate lights, set light intensity and color, and set light type; and the Camera toolbox, where you set a camera's position. While it's not quite as simple as it sounds, it's not all that difficult either.

Each object is a collection of one or more surfaces. Each surface can have its own appearance, or Look. Looks are ShowPlace's way of dealing with RenderMan shaders, which describe what objects should look like and how lights and the atmosphere should behave in a scene. Looks form a user interface for controlling shaders; they can be considered a superset of a shader that includes additional data, such as a text description of the shader, help information, and rendered examples of the shader's effects. ShowPlace includes a set of Looks including wood, marble, metal, and building materials.

Shaders and Looks are procedural descriptions rather than bitmaps. As such, they can include parameters that alter the geometry of an object. This could include the rough surface of a stucco wall, the pebbly gravel walk, or the ridged surface of an industrial steel floor. These geometric displacements can cast their own shadows or create their own reflections.

ShowPlace includes a program called the Librarian that handles the installation of

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Looks and Objects. It also includes LabelMaker, which can create new surfaces from PICT files or text. This lets you wrap an object with a PICT file, or apply text as a surface to an object. You can also import RIB files created by other applications and manipulate them in ShowPlace.

ShowPlace lets you control the format of the rendered image, both in the file size and color depth. It can also save an alpha channel mask that separates objects from their background. This can be imported into Photoshop for compositing with other images.

ShowPlace and MacRenderMan are bundled together. MacRenderMan includes PhotoRealistic RenderMan for rendering, RenderMonitor for background rendering, RenderApp for viewing images and managing the display and conversion of images, and ShaderApp for creating new shaders. It also includes a sample library of RIB files, shaders, and texture maps. A video training tape for ShowPlace is also included. This package has a list price of $695.

A CD-ROM version of this bundle is also available. It includes sneak previews of Pixar's Classic Textures, a collection of photographic textures, and sample images and excerpts from Pixar's award-winning animated films. No printed manuals are included in this package, but online documentation is provided and may be printed out. The training tape is not included in this package. List price is $495.

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THIRD PARTY ENHANCEMENTS

If you want to create your own objects, SwivelMan, MacroMedia's bundle of Swivel 3D Professional 2.0 and MacRenderMan, may be just the thing for you. Swivel 3D is reasonably easy to use, and has its own large library of objects to work with as a start. It also includes Shader Presets, which allow quick and easy access to RenderMan shaders. Swivel 3D can export RIB files for rendering with MacRenderMan, or for import into ShowPlace.

In addition to Swivel 3D, Alias Research has just announced a new version of Sketch! that offers RIB file export. Sketch! excels at creating smooth curved surfaces through its use of NURBS modeling. Non Uniform Rational B-Splines provide a more accurate way of modeling curves than polygon-based definitions. NURBS-based models, when exported to a RIB file, are no longer unique, but NURBS-based modelers are becoming more popular despite their slower speeds.

Other modelers that output RIB files include Abvent's Zoom and Focus, Aldus's Super 3D, ASG's ModelVision, AT&T's MacTopas, Dynaware's DynaPerspective, Macromedia's MacroMedia 3D, VIDI's Presenter Professional and ModelerPro.

The Valis Group offers a collection of shaders, looks, and object files. For example, Volume 1 includes seventeen shaders that include a range of adjustable parameters for changing the characteristics of each surface. These shaders include anodized aluminum, transparent bumpy glass, tortoise shell, stained wood veneer, tweed fabric, and others. Volume 2 contains a set of a dozen shaders or looks, including sprayed acoustic ceiling, diamond corner linoleum, plain painted stucco, ceramic tile, polished metal, and striped wallpaper. Valis Prime RIB is a set of 215 objects in RIB format; it includes PickTure, a visual file selector which when installed with ShowPlace can display a prerendered miniature image of each Prime RIB object.

ShowPlace lets you control the format of the rendered image, both in the file size and color depth. It can also save an alpha channel mask that separates objects from their background.

The Valis Group also offers the Valis ToolKit; a package that includes the ShaderDetective and ColorMinder. ShaderDetective allows you to change the values in shader parameters and view the results on eight sample 3-D objects. The modified parameter can be saved with the shader RIB file. ColorMinder is an application that lets you view and chan the color values stored in a RIB file.

Acme Animotion Group offers five librar of NURBS-based stock clip objects. Each R object is accompanied by a PICT file th shows the object in rendered form. The fi libraries include the Macintosh library of M computers and accessories, the IBM PS/2 brary of PS/2 computers and accessories, t Outdoor Furniture library, the Desk Acc sory library, and the Glassware library.

Acuris, Inc. offers ClipModel libraries objects created using NURBS. ClipModel braries are available for 3D Maps, elevati terrains, cities, architecture and design, h man models, vehicles, and other objects. Th are also available in a variety of formats b sides RIB.

Getting a rendering out of MacRenderM can be an exercise in patience. Even on t fastest Macs, rendering a complex image c take hours, if not days. There are, howev ways to speed up the process. Yarc Syste and StarTech both offer hardware accele tors that speed up the rendering times MacRenderMan. Both cards install in t NuBus slot on a Mac. Both companies of support for multiple cards to speed up t rendering times even more, and StarTech a offers network support via NetRenderMa

Pixar's NetRenderMan allows users to u lize remote CPUs for rendering. The init version of NetRenderMan supports UN workstations that support PhotoRealis RenderMan—e.g. NeXT, Silicon Graphics IR or Indigo, Sun SPARC, and others. A la version of NetRenderMan will support n work rendering to Macs, including the use multiple Macs to speed up rendering.

Those of you with a programming bent c get Pixar's RenderMan Toolkit. It inclu the RenderMan Interface Specification, t Procedural Interface, the Shading Langua a copy of PhotoRealistic RenderMan, a sta of manuals, and access to phone support that's a little too rich for your blood, y might pick up a copy of *The RenderMan Co panion* by Steve Upstill, published Addison-Wesley. ■

Continued on page 167

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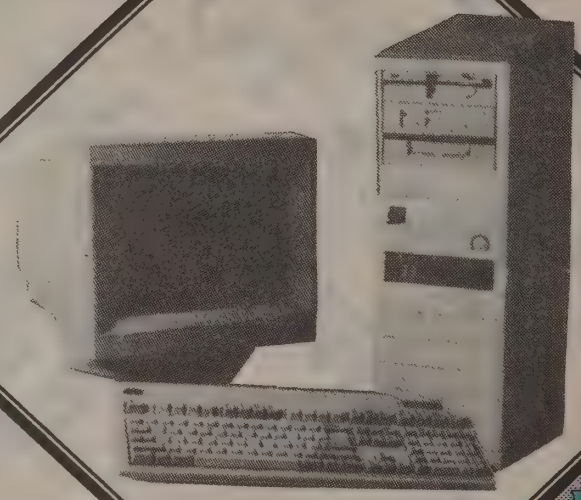

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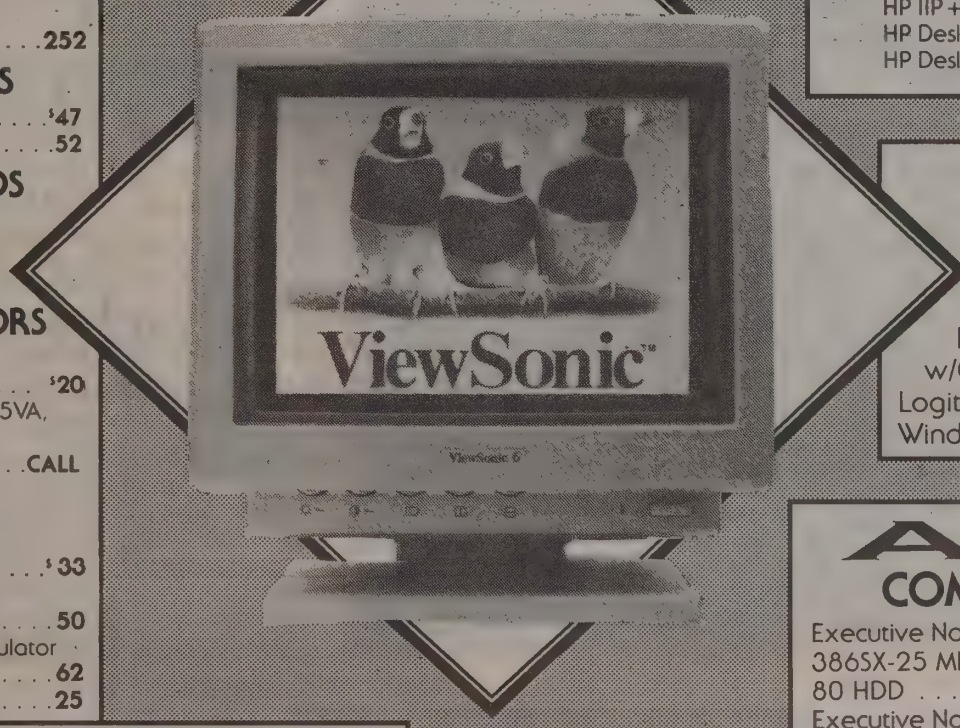

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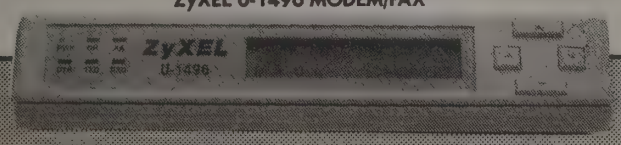

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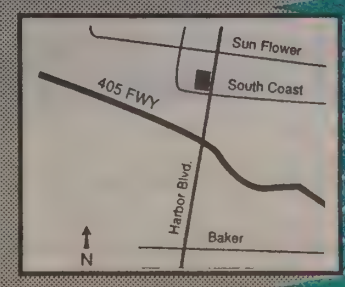

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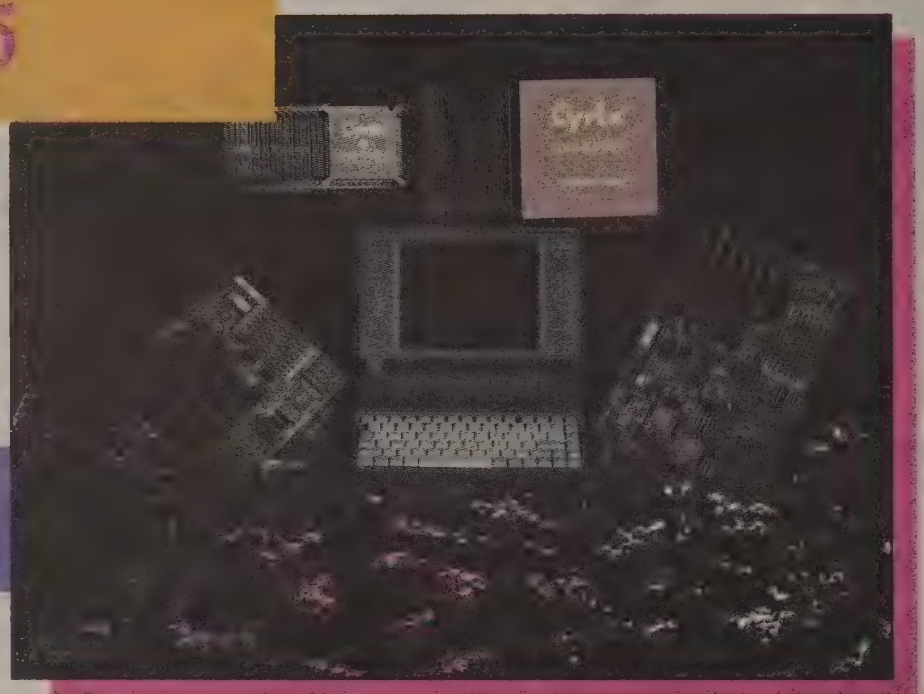

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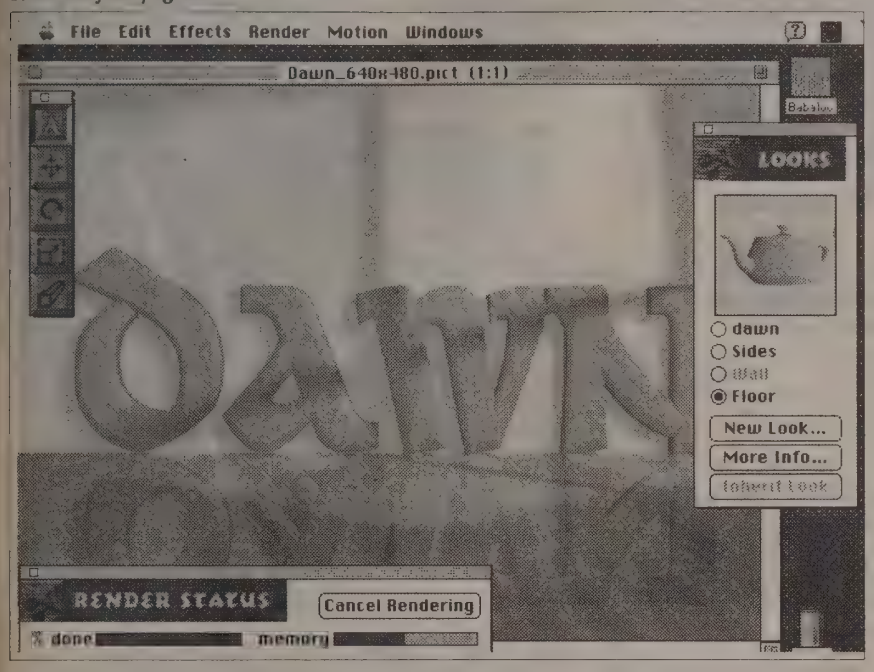
Continued from page 162

A RENDERMAN IMAGE BY PIXAR



Typestry

Pixar's latest release in the RenderMan family of products is Typestry ($299), an application that turns Type 1 and TrueType fonts into 3-D images. It uses an even simpler interface than ShowPlace, and offers special effects like motion blur, perforations, bevels, and QuickTime animations.

Typestry was designed for creating 3-D effects in a 2-D environment. It's perfect for creating type effects for use in page layout programs, package design, and multimedia presentations. Images from Typestry can be rendered at any resolution, and can be exported smoothly to Photoshop using an alpha channel to prevent jaggies.

Typestry has that wonderful mix of a short learning curve for the basic features, and lots of subtlety and depth in the background for those wishing to become power users. Two pages in the manual are all it takes to take you through installation and the creation of your first image. The manual is laid out more like a magazine than the traditional tutorial-and-reference style. This has both benefits and hazards. The liberal use of illustrations and sample renderings, the hints and tips mixed in with basic instructions, and the honest discourse on rendering times all help to draw you deeper. The lack of any reference section and the minimal index may leave you with no option but to call for technical support (fortunately an 800 number).

While not designed as an animation program, Typestry does provide some powerful animation features. The keyframe editing capability, the hierarchical relationships of objects, the variety of preview modes, the motion blur, and QuickTime support all tantalize and inspire one to find ways to push Typestry just a little further. With the right set of Type 1 fonts you may be able to do more than the designers of Typestry expected.

—Matthew Leeds

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Continued from page 87

There's traditionally been an awful lot of economic centralization in broadcasting and publishing.

Well, these things all required enormous infrastructure previously. The movie studios required the ownership of movie theaters and the ownership of patents on sprockets and collaboration with the film manufacturers, and sound stages and cameras and a host of actors who were signed indelibly and irrevocably to the studio.

That will just plain old go away. A handicam, a VCR, and a pipeline to the Net. That's all you're going to need.

And hopefully you're going to need Script X. [*laughs*]

But then there arises another problem, and it's one which no one has an angle on solving...Datashock. One of the good things that these central providers did was to edit the torrent of reality down to what seemed generally useful and important.

Oh, I agree.

Already I'm seeing Datashock—connection crashes—everywhere I look in this society. There are too many points of view accessible to everybody all of a sudden. It's all white noise.

Right.

What do you think is going to be the ultimate solution to that?

The answer is that people will never buy things on a totally unedited basis. A new class of people will emerge whose job it is to review certain categories of stuff that's being provided into this great data mass, and filter out the gems, and redistribute them. The people who do that well, presumably, will make a lot of money. They're going to be the conceptual equivalent of today's editors of *Time* Magazine or of CNN.

Or perhaps more like Esther Dyson.

Or Esther Dyson.

People who have newsletters that are specific in their readership and content.

But I think Esther Dyson continues just absolutely unmodified. The only change in Esther Dyson's stuff is that all of a sudden it's coming over your pipeline instead of on paper, but that's no big deal.

The interesting question is Joe Schmoe, who has never tried to publish anything before, who goes out with a handicam and makes a pretty interesting fifteen-minute short on what's going on in his or her—I guess it would be Jane Schmoe in that case—in his or her neck of the woods, and puts that onto the Net. And the local newspaper-editor-conceptual-equivalent is the one who looks at that and says, "Gee, that was pretty good. I think I'll recommend that people watch this as part of the recommended list of things to watch today." And if I happen to subscribe to that particular editor, that's what I'll watch.

Now, you can envision a reamalgamation of power around editorial prowess and acceptability. I think that's inevitable. But I think it will be much more subject to the genuine services provided by those individuals. It will be, in a sense, much more democratic, because people will be able to change editor to editor far more easily than today. Today they're able to change subscriptions from *Time* to *Newsweek*.

I suppose this is going to have a profound effect on the way we view things economically.

Oh, I think this is—again, I hearken back to my Berkeley roots—this is the most mischievous thing that I can imagine pulling off. It is absolutely mindbogglingly mischievous, because it affects virtually all of the power centers and all of the economic centers in this country today, period. And if it's done right, it has a remarkably democratizing effect, a remarkably empowering effect, on people who are fundamentally disenfranchised right now, for whatever reason. And you know, it does everything from Head Start to jewelry sales, all in the same box and within the same sort of general framework mechanism. It's pretty remarkable what we can pull off in the digital world.

My genuine hope is that Kaleida can do two things: hasten it, and direct it so it's just a little bit better than it would have been if Kaleida had not existed. If I achieve those two things, I'm a fulfilled man.

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So, to go back to your first question, that's why I took the job.

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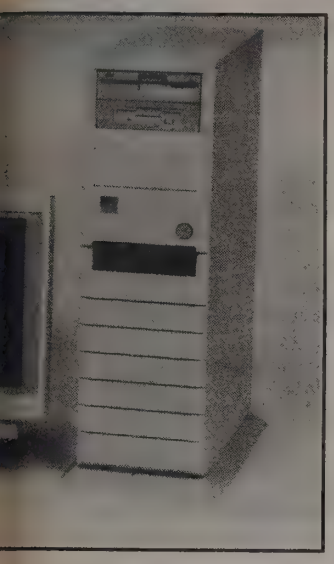

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* 4MB Memory on board expandable up to 32MB
* TEAC 1.2M & 1.44M FDD
* IDE Floppy & Hard Disk Controller
* S3 1MB Local Bus Graphics Accelerator
* 2 Serial / 1 Parallel / 1 Game
* CS-230 Mid-Veritcal Case
* 250 Watts UL Power Supply
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* 2 Serial / 1 Parallel / 1 Game
* CS-330 Mini-Veritcal Case
* 220 Watts UL Power Supply
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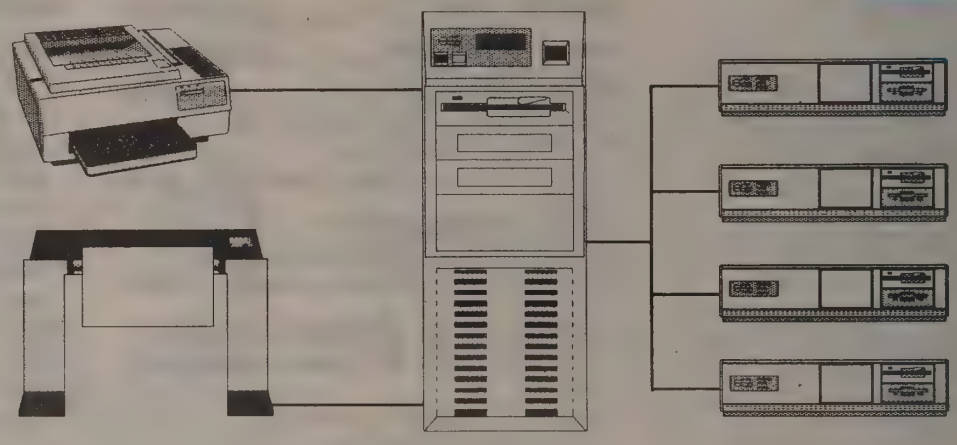

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- Intel EtherExpress 16-bit Ethernet Card

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- Focus 2001 Keybaord
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OPTI Baby 486DX-50MHz Local Bus M/B w/256K Cache $845.00
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Mini-Micro MM1467L 14" Paper-white MonoVGA Monitor $126.00
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Mini-Micro MM1477 15" VGA Color Monitor (1024x768) $445.00
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ViewSonic 6 14" Non-Interlaced Color Monitor (1024x768,.28dp) $340.00
ViewSonic 6E 14" Non-Interlaced Color Monitor (1024x768,.28dp) $332.00
Viewsonic 5E 14" Non-Interlaced Color Monitor (1024x768,.28dp
72Hz refresh rate @1024x768) $410.00
ViewSonic 6FS 15" Multi-Frequency Color Monitor (Flat-Screen,
Low radiation, 1280x1024,.28dp, 72Hz refresh rate @1024x768) $590.00
ViewSonic 7 17" Multi-Frequency Color Monitor (Digital Auto-Tracking
Flat-Screen, Low radiation, 1280x1024,.28dp) $1050.00
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Panasonic 1.2MB FDD (5.25") $58.00
Panasonic 1.44MB FDD (3.5") w/Mounting Kit $55.00
Conner CP-3000 40MB IDE HDD (29ms) $180.00
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Fujitsu M2266SA 1.2GB SCSI HDD (12ms, 5yr warranty) $1595.00
Fujitsu M2652S 2.0GB SCSI HDD (12ms, 5yr warranty) $2530.00
Maxtor MX-7120A 120MB IDE HDD (15ms) $298.00
Maxtor MX-7120S 120MB SCSI HDD (15ms) $325.00
Maxtor MX-7213A 213MB IDE HDD (15ms) $390.00
Maxtor MX-7213S 213MB SCSI HDD (15ms) $495.00
Maxtor LXT-340A 340MB IDE HDD (13ms) $640.00
Maxtor LXT-340S 340MB SCSI HDD (13ms) $715.00
Maxtor LXT-535A 520MB IDE HDD (13ms) $895.00
Maxtor LXT-535S 520MB SCSI HDD (13ms) $945.00
Maxtor XT-8760S 675MB SCSI HDD (16.5ms) $1155.00
Maxtor PO-12 1.2GB SCSI HDD (13ms) $1535.00
Maxtor P1-17S 1.7GB SCSI HDD (13ms) $1735.00
Micropolis 1598 1.2GB SCSI HDD (14.5ms, 5 yr warranty) $1575.00
Micropolis 1548 1.75GB SCSI HDD (14ms, 5 yr warranty) $2250.00
Seagate ST-351AX 42MB IDE HDD (28ms) $175.00
Seagate ST-3144 130MB IDE HDD (15ms) $290.00
Western Digital AC280 80MB IDE HDD (17ms) $225.00
Western Digital AC2120 120MB IDE HDD (15ms) $305.00
Western Digital AC2170 170MB IDE HDD (14ms) $335.00
Western Digital AC2200 209MB IDE HDD (13ms) $380.00
Western Digital AC2340 340MB IDE HDD (13ms) $660.00
SyQuest SQ555 44MB SCSI Removable Disk Drive $290.00
SyQuest SQ5110 88MB SCSI Removable Disk Drive $335.00
SyQuest SQ400 44MB Cartridge $75.00
SyQuest SQ800 88MB Cartridge $108.00
SyQuest SQ01 SCSI Adapter w/Software $45.00
SyQuest External Kit $115.00
Colorado Memory System JT-10 120MB Parallel Port Tape Backup $410.00
Colorado Memory System JT-20 250MB Parallel Port Tape Backup $450.00
Colorado Memory System DJ-10 120MB Tape Backup $205.00
Colorado Memory System DJ-20 250MB Tape Backup $258.00
Colorado Memory System AB-11 External Adapter Kit $40.00
Colorado Memory System KE-09 External Drive Kit $80.00
Colorado Memory System FC-10 500Kb/s-1Mb/s Adapter Kit $90.00
Colorado Memory System TC-15 Data Compression Adapter Kit $189.00
3M DC2120 120/250MB Mini Data Cartridge $21.50
Mitsumi Internal CD-ROM w/Interface $225.00
NEC CDR-74 External SCSI CD-ROM/MPC $598.00
NEC CDR-84 Internal SCSI CD-ROM/MPC $538.00
Sony CDU-535 Internal CD-ROM Drive w/Interface $325.00
Sony CDU-541 Internal SCSI CD-ROM Drive $465.00
*** *CD Package - MultiMedia Encyclopedia, The Animals! (The San Diego Zoo)*
Reference Library, US Atlas / World Atlas, CD Game Pack II *$120.00*

PRINTERS

Citizen 200GX Printer (9pin/213cps/80col/color option) $164.00
Citizen GSX-140+ Printer (24pin/220cps/80col/color option) $289.00
Citizen GSX-230 Quiet Printer (24pin/color option) $248.00
Citizen GSX-240 Quiet Printer (24pin/300cps/80col/color option) $318.00
Citizen GSX-145 Printer (24pin/192cps/132col/color option) $375.00
*** *Color Kit for Citizen 200GX, GSX-140 +, GSX-230 or GSX-240* ..... *+45.00*
Hewlett Packard DeskJet 500 InkJet Printer $415.00
Hewlett Packard DeskJet 550C Color InkJet Printer $745.00
Hewlett Packard LaserJet IIP Plus Laser Printer $815.00
Hewlett Packard LaserJet IIIP Laser Printer $1025.00
Hewlett Packard LaserJet VI Laser Printer $1455.00
Panasonic KX-P1180i Printer (9pin/240cps/80col) $159.00
Panasonic KX-P1123 Printer (24pin/240cps/80col) $199.00
Panasonic KX-P1124i Printer (24pin/300cps/80col) $289.00
Panasonic KX-P2180 Quiet Printer (9pin/240cps/80col/color option) $178.00
Panasonic KX-P2123 Quiet Printer (24pin/240cps/80col/color option) $248.00
Panasonic KX-P2124 Quiet Printer (24pin/320cps/80col/color option) $328.00
Panasonic KX-P2624 Quiet Printer (24pin/300cps/132col) $398.00
*** *Color Kit for Panasonic KX-P2180, KX-P2123 or KX-P2124* ..... *+45.00*
Panasonic KX-P4410 Laser Printer (5ppm/512K/300dpi) $635.00
Panasonic KX-P4430 Laser Printer (5ppm/1MB/300dpi) $915.00
Okidata OL400P LED Page Printer $598.00
Okidata OL810 LED Page Printer $1048.00
Okidata OL830 LED Page Printer $1278.00
Okidata OL840 Postscript Printer $1598.00
Star NX-1001 Multi-Font Printer (9pin/180cps/80col) $139.00
Star NX-1020R Color Printer (9pin/180cps/80col) $179.00
Star NX-2420R Rainbow Color Priner (24pin/250cps/80col) $289.00

KEYBOARDS

BTC 5339SX 101keys Keyboard $25.00
Focus-2001 101keys Keyboard w/Hard Dustcover (Click) $42.00
Focus-6000 101keys Keyboard (Soft click) $36.00
Focus-8000.111keys Keyboard (Calculator, Soft click) $46.00
Focus-9000 128keys Keyboard (Programmable, Click) $69.00
Fujitsu-4700 101keys Keyboard $47.00
Honeywell-101WN 101keys Keyboard (3yr. warranty) $40.00
KT-2000 101keys Keyboard (Keytronic made) $42.00
MaxiSwitch 2191 124keys Programmable Keyboard $69.00

CHASIS (CASES)

CS-20 Baby AT Case w/200W UL P.S. (3x5.25",2x3.5") $84.00
CS-35 Mid Vertical Case w/230W UL P.S. (3x5.25",3x3.5",Digital) $99.00
CS-36 Full Vertical Case w/230W UL P.S. (6x5.25",2HD,Digital) $135.00
CS-300GTS Full Vertical Case w/300W UL P.S. (7x5.25", Double fan) $185.00
CS-510 Baby AT Case w/200W P.S. (3x5.25",1x3.5") $66.00
CS-931 Mini Vertical Case w/230W P.S. (2x5.25",3x3.5",Digital) $65.00
CS-932 Mini Vertical Case w/230W P.S. (2x5.25",3x3.5") $63.00
CS-923 Mid Vertical Case w/230W P.S. (3x5.25",3x3.5",Digital) $92.00
CS-912 Full Vertical Case w/230W UL P.S. (4x5.25",2HD,Digital) $123.00
Diamond Series: (Black color model available +$3.00)
CS-130 Full Vertical Case w/250W UL P.S. (4x5.25",2HD,Digital) $152.00
CS-230 Mid Vertical Case w/250W UL P.S. (4x5.25",2HD,Digital) $142.00
CS-330 Mini Vertical Case w/220W UL P.S. (2x5.25",3x3.5",Digital) $90.00
CS-530 Desktop Case w/250W UL P.S. (2x5.25",2x3.5",2HD,Digital) $102.00
CS-730 Baby AT Case w/220W UL P.S. (2x5.25",1x3.5,1HD,Digital) $94.00
CS-830 Slim Line Case w/220W UL P.S. (1x5.25",1x3.5",1HD,Digital) $90.00
2nd Fan for Diamond Series cases *$12.00*

MISCELLANEOUS

Honeywell 3-buttom Serial Mouse $34.00
Logitech Dexxa Mouse $26.00
Logitech Bus MouseMan $68.00
Logitech PS-2/Serial Combo MouseMan $68.00
Logitech Trackman II (Serial) $84.00
Logitech Trackman Portable $105.00
MicroSoft Serial Mouse $78.00
MicroSoft Bus Mouse $90.00
MicroSoft BallPoint Mouse for Notebook computer $105.00
Intel SatisFAXtion model 100 Internal Fax Modem $105.00
Intel SatisFAXtion model 200 Internal Fax Modem $305.00
Intel SatisFAXtion model 400 Internal Fax Modem $415.00
Intel SatisFAXtion modem 400 External Fax Modem $455.00
U.S. Robotics Sportster 2400PC Internal Data Modem $124.00
U.S. Robotics Sportster 2400 External Data Modem $143.00
U.S. Robotics Sportster 9600PC Internal Data Modem $289.00
U.S. Robotics Sportster 9600 External Modem $342.00
U.S. Robotics Sportster 14400/9600 Internal Data/Fax Modem $348.00
U.S. Robotics Sportster 14400/9600 External Data/Fax Modem $385.00
Zoltrix 2400i Internal 2400Baud Data Modem $39.00
Zoltrix Standard Internal 9600SR/2400 Send/Receive Fax/Data Modem $66.00
Zoltrix Standard Internal 9600SR/2400 Send/Receive Fax/Data Modem
-w/BitFax for Windows $68.00
Zoltrix Enhanced Internal 9600SR/2400 Send/Receive Fax/Data Modem
- with Hardware MNP5 & V.42bis $96.00
Zoltrix Pocket 9600SR/2400 Send/Receive Fax/Data Modem $120.00
Aceex 9600bps Internal V.32/V.42bis/MNP5 Data Modem $195.00
Aceex 9600bps External V.32/V.42bis/MNP5 Data Modem $215.00
Accex 14400/9600SR Internal Data/Fax Modem $235.00
Aceex 14400/9600SR External Data/Fax Modem $260.00
Cyrix 83X87-16 / IIT 3C87SX-16 Math Coprocessor ..... $78.00 / $72.00
Cyrix 83X87-25 / IIT 3C87SX-25 Math Coprocessor ..... $82.00 / $75.00
Cyrix 83D87-25 / IIT 3C87DX-25 Math Coprocessor ..... $88.00 / $80.00
Cyrix 83D87-33 / IIT 3C87DX-33 Math Coprocessor ..... $92.00 / $84.00
Cyrix 83D87-40 / IIT 3C87DX-40 Math Coprocessor ..... $108.00 / $99.00

ESSENCE GROUP

Order Hot Line: 714/546-3110 ✧ Fax Order Line: 714/546-3803 ✧ Technical Support: 714/546-7902

RESOURCES

Calendar Of Events

CALENDAR LISTING CHANGES

Beginning with issue #100, the Calendar listings were reorganized into two sections. The first part includes conferences, shows, and other special events. The second presents classes, seminars, and workshops.

We hope this will help you more easily find the information you are searching for as well as stay informed of the latest events and resources that are available to you.

Thank you,
MicroTimes staff

CONFERENCES, SHOWS, AND OTHER SPECIAL EVENTS

NOVEMBER

November 7 Computer Show. LA Fairgrounds, Pomona. Computer Marketplace. Call: 1-800-800-5600.

November 8 Computer Show. Sherman Square Entertainment Center, Reseda. Computer Marketplace. Call: 1-800-800-5600.

November 9–13 Synergy '92 Conference. Anaheim. Weingarten Publications. Call: (617)542-0146.

November 14 Computer Show & Sale. CSUN, North Campus. Richard James Corp. Call: 1-800-433-7469.

November 15–19 ASM '92: 3rd International Conference On Applications Of Software Measurement. La Jolla. Software Quality Engineering. Call: 1-800-423-8378.

November 16–20 Comdex/Fall '92. Las Vegas. The Interface Group. Call: (617)449-6600.

November 21 Computer Show & Sale. Anaheim Stadium—Indoors. Richard James Corp. Call: 1-800-433-7469.

November 22 Computer Show & Sale. Glendale Civic Auditorium. Richard James Corp. Call: 1-800-433-7469.

November 28 Computer Show. LA Fairgrounds, Pomona. Computer Marketplace. Call: 1-800-800-5600.

November 30 Marketing/Sales SIG Meeting. Los Angeles. Software Council of Southern California. Call: (310)477-9664.

DECEMBER

December 2 Networking Dinner/Meeting On VAR/Reseller Channel. Westin Hotel, Costa Mesa. Software Council of Southern California. Call: (310)328-0043.

December 2–5 Second International Conference On Entrepreneurial Technology Transfer. Baltimore, MD. MIT Enterprise Forum. Call: Todd Langton, (617)826-0397.

December 5 Computer Show & Sale. CSUN, North Campus. Richard James Corp. Call: 1-800-433-7469.

December 6 Computer Show & Sale. Orange County Fairground. Richard James Corp. Call: 1-800-433-7469.

December 12 Computer Show & Sale. Anaheim Stadium—Indoors. Richard James Corp. Call: 1-800-433-7469.

December 13 Computer Show & Sale. Glendale Civic Auditorium. Richard James Corp. Call: 1-800-433-7469.

December 19–20 Computer Show. LA Fairgrounds, Pomona. Computer Marketplace. Call: 1-800-800-5600.

JANUARY

January 25–29 USENIX Winter 1993 Technical Conference: The Challenge Of Innovation. San Diego. USENIX. Call: (714)588-8649.

January 30 Computer Show. LA Fairgrounds, Pomona. Computer Marketplace. Call: 1-800-800-5600.

CLASSES, SEMINARS, AND WORKSHOPS

NOVEMBER

November 14 Computer Basics Seminar. Los Angeles. Advanced Computer Enterprises Training Center. Call: (310)208-7822.

November 16–17 Database/Word Processing Software Workshop. Los Angeles. Symantec Training Group. Call: 1-800-786-8620.

November 18–20 Project Management Software Workshop. Los Angeles. Symantec Training Group. Call: 1-800-786-8620.

November 21 Computer Basics Seminar. Los

NOVEMBER 28

COMPUTER SHOW

Pomona

Computer Marketplace computer shows feature over three hundred exhibits with thousands of products. They are now featuring seminars open to all users—from the beginner to the advanced computer user. Admission is $6.00 and shows are from 10:00 am to 5:00 pm. Los Angeles County Fairgrounds (Fairplex), Pomona. Call: 1-800-800-5600.

FEBRUARY 8–10, 1992

COMPUTER SOFTWARE MANUFACTURERS TRADE DELEGATION

The US Department of Commerce is organizing a special trade delegation for US computer software manufacturers to London, England. This event, called Matchmaker, is scheduled to maximize timely export opportunities in the United Kingdom. The delegation is open to thirty-five qualified US manufacturers and offers one-on-one meetings with business contacts, thorough embassy briefings, and assistance with hotel and travel arrangements. The participation fee is $1750 per company. Contact: David Posnar, L.A. District Office, US Department of Commerce, 11000 Wilshire Blvd., Rm. 9200, Los Angeles, CA 90024. (310)575-7214.

Continued

Computer MARKETPLACE

COMPUTER TRADE SHOW
WHOLESALE PRICES
OPEN TO THE PUBLIC

All shows run from 10:00 a.m. to 5:00 p.m.
Admission $6.00

"The Traveling Mall That Has It All"

Over a hundred companies having price wars with each other to compete for your business.
You can't find this much inventory in a hundred computer stores nor can you get these prices.
There is also a consignment table to sell your computer equipment.

FREE
PRODIGY®
w/qualified purchase

SHOW DATES

POMONA
L.A. County Fairgrounds (Fairplex)

Exit Highway 10 at Fairplex Drive.
Go North to Mckinley, turn right. Then turn Left on White Avenue to Gate 14.

November 7, 1992 SATURDAY
November 28, 1992 SATURDAY
December 19 & 20, 1992 SATURDAY & SUNDAY
January 9 & 10, 1993 SATURDAY & SUNDAY
January 30, 1993 Saturday

Pomona Seminars
Co-sponsored with Team Vision & Focus Automation

- Viruses
- Intro To Word Perfect
- Grow your Business by Planning
- Intro To Computers
- Intro to Lotus 1-2-3
- Intro to Local Area Networking
- Dictionaries Parsers & Translators
- Intro to Word Processing
- Intro to DOS/Windows
- Intro to Spreadsheets
- Intro to dBase
- Computer Consulting for Profit
- Intro to Graphic Software
- Intro to Windows 3.1
- Desk Top Publishing
- Intro to Word Perfect
- DOS 5.0
- Purchasing & Maintaining Computer Hardware

RESEDA
Sherman Square Entertainment Center

From 101 Freeway, take the Reseda off ramp, turn left (if travelling East) on to Reseda Blvd. to Sherman Way, turn right, one block to Canby Street. 18430 Sherman Way.

November 8, 1992 SATURDAY
February 6, 1993

BUENA PARK
Sequoia Athletic Club

Take the Beach Blvd. Exit off the 91 Freeway, go one block North to 7530 Orangethrope.

February 7, 1993 SUNDAY

Call for information:
(408) 778-5200 or 800-800-5600

PRC

Hard Disk Drives

✦ Sales ✦ Sales ✦ Sales ✦ Sales ✦

- New, Used, and Refurbished
- Most models available
- AT/XT Kits Available
- Full One-Year Warranty on any drives above 80MB!
- Send in your dead drives for cash or trade-in credit!
- Visa/Mastercard Welcome
- Great Pricing-call around first and compare!

✦ Repairs ✦ Repairs ✦ Repairs ✦

- 6-month Warranty on repairs
- 5-7 Days on most models
- ST506/ESDI/SCSI/IDE/IBM: We do them all!
- Class 100 Clean Room
- Data Recovery Services
- Manufacturer-Trained Techs
- Advance Exchanges Avail.
- Full Technical Support

PRC: The Disk Drive Experts

800-627-DISK

9233 Eton Ave, Chatsworth, CA 91311
Tech Support (818) 700-8482
Fax (818) 700-0533

RESOURCES

Calendar Of Events continued

Angeles. Advanced Computer Enterprises Training Center. Call: (310)208-7822.

November 28 Computer Basics Seminar. Los Angeles. Advanced Computer Enterprises Training Center. Call: (310)208-7822.

DECEMBER

December 5 Computer Basics Seminar. Los Angeles. Advanced Computer Enterprises Training Center. Call: (310)208-7822.

December 7–9 Prototyping And Rapid Application Development Seminar. Los Angeles. DCI. Call: (508)470-3880.

December 12 Computer Basics Seminar. Los Angeles. Advanced Computer Enterprises Training Center. Call: (310)208-7822.

December 14–15 How To Master The Macintosh Computer Workshop. Anaheim. MacAcademy. Call: 1-800-527-1914.

December 15–18 Intro To ISDN Course. Los Angeles. Learning Group International. Call: Kim Sisson, 1-800-421-8166.

December 17–18 How To Master The Macintosh Computer Workshop. San Diego. MacAcademy. Call: 1-800-527-1914.

December 19 Computer Basics Seminar. Los Angeles. Advanced Computer Enterprises Training Center. Call: (310)208-7822. ■

•••NOTICE•••
ACP's 52nd GIANT
COMPUTER SWAP MEET
Sunday
Nov. 29th, 8-2
Orange County's Original!
FREE Admission and Parking
100's of Sellers 'n Deals
in the Huge Parking Lot
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ACP SUPER STORE
Since 1976
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Santa Ana • 714-558-8813
Some Dealer Space Still Available...Call Mary

Continued from page 159

guru: "My suggestion is to learn the difference between Close and Quit. Many new users Quit from their word processor when finished with one document, and then search through the Finder for the icon of the next file to double-click it. This procedure is really slow on a Mac Plus, SE, or Classic (not running MultiFinder or System 7), since most of the time involved in opening documents is spent loading the word processing program itself. Learn to use Open from the file menu to access files."

Your system will crash and you will lose your data. It's a fundamental part of computing. Save and back up your data. There are many good backup utility programs and strategies. Unfortunately, they all require that you actually employ them, and most users don't.

• **Mitch Turitz**, BMUG West member and Librarian: "Ever have the message 'Initialization Failed!' when you tried to initialize a floppy disk? Most floppies are guaranteed so that you can return them to the manufacturer for a new disk, but who wants to spend $.52 to return one floppy disk that costs less than a dollar?

"I use BAD 1.1, an Extension that waits until you have a bad floppy that fails to initialize. It then maps out the bad sectors, and gives you a usable disk, regardless of the number of bad sectors in it. Sometimes there may be as much as 100K mapped out of the disk, but the remaining 700K is usable." (Bad 1.1 is on BMUG Utilities D1 disk available from the BMUG office.)

THE DAILY PLANETBMUG

For years, one of the toughest things at BMUG has been explaining to new members how to use our BBS. It wasn't the usual cup of tea for many Macintosh users, since it ran on a PC clone. We've been hoping that someone would write a good graphic interface for our members to use. Finally, a company called SoftArc has produced such a product, First Class.

In September, the BMUG BBS became PlanetBMUG, with a friendly, full-color interface with icons, fonts, and windows. The system is running on a Mac IIfx, with a bank of sixteen speedy v.32bis modems, and over a gigabyte of online storage.

A great thing about the new software is that it allows file transfers in the background, so that you can read your mail and messages while getting the latest programs. PlanetBMUG's InterNet Link gives BMUG members a worldwide electronic mail address on the largest network of computers.

BMUG is distributing the PlanetBMUG FirstClass software to members for free, so they can visit PlanetBMUG soon. Another benefit of membership—the friendliest online service on Earth!

SHAREWARE SPOTLIGHT

Getting started with programs from the BMUG shareware library can be overwhelming—there's so much to choose from. The *1993 BMUG Shareware Disk Catalog* (now being published by Addison-Wesley) is an easy way to help you choose which disk to buy. It's available from the BMUG office, or a bookstore near you.

Here are a few recommended disks, with programs that will help you get started with your Macintosh:

• **Business C3.** This disk contains a number of envelope and address book utilities.

• **DAs A1.** There are more calculator programs on this disk than in a consumer electronics store. One of my favorites is Conversion, which will help you with metric measures and bar bets.

• **Fonts B10.** If you're using the TrueType technology that comes with new Macintosh models, you'll like this disk. It has a good assortment of display fonts.

• **Pictures K1.** It's impossible to select clip art for someone else, but this disk has lots of pictures of animals, including birds, horses, and dinosaurs. BMUG also has a good set of holiday season clip art in the Pictures H1–6 disks.

• **Utilities V1.** There are bad virus programs floating around and you don't want to catch one. This disk always has the latest version of Disinfectant, a free virus detection and eradication utility.

BMUG disks are $4 each from the BMUG office. ■

CALIFORNIA
Computer Show & Sale

LOWEST PRICES IN THE USA!

PC Compatibles • Hardware • Software • Accessories

UPCOMING SHOWS

CSUN, NORTH CAMPUS
November 14, 1992 • 18000 Devonshire, Northridge

ANAHEIM STADIUM-INDOORS
November 21, 1992 • 2000 State College Blvd., Anaheim

GLENDALE CIVIC AUDITORIUM
November 22, 1992 • 1401 North Verdugo Rd., Glendale

CSUN, NORTH CAMPUS
December 5, 1992 • 18000 Devonshire, Northridge

ORANGE COUNTY FAIRGROUNDS
December 6, 1992 • 88 Fair Drive, Costa Mesa

ANAHEIM STADIUM-INDOORS
December 12, 1992 • 2000 State College Blvd., Anaheim

GLENDALE CIVIC AUDITORIUM
December 13, 1992 • 1401 North Verdugo Rd., Glendale

All Shows from 10a.m. to 4p.m.
Admission: $6.00
Children under 12 FREE

FOR INFO. CALL 1-800-533-7220
BBS: 415-340-9370

$1.00 OFF
Good For All Of The Above Shows.
Limit 1 discount coupon per person.
Regular Admission $6.00
Copies accepted.

USER GROUP NETWORK

BULLETIN BOARDS

RESOURCE LISTING CHANGES

As electronic bulletin boards continue growing, system operators are adding phone lines that include additional area codes. Beginning with issue #100, *MicroTimes* introduced a "Multi-Zone" category for BBSes with access phone numbers in multiple area codes.

Thank you,
MicroTimes staff

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The Career Network. (213)623-8503. 5 pm–12 am, 300/1200/2400. Job hunting. Now your resume can reach over 250 major employers each month. Sysop: Steven McCormick. [Exp. #102.]

LAAUGLine. (213)387-1002. 24 hrs., 300/1200/2400. Amiga. Sysop: Thom Irwin. [Exp. #102.]

Megabytes BBS. (213)221-6379. 8-N-1, 300/1200/2400. Specializing in Windows 3.x shareware. Sysop: William Rivas. [Exp. #102.]

The Westside. (213)933-4050. LA's most active adult system, 70 lines, chat, online games, and more. Free trial for mentioning *MicroTimes*. [Exp. #104.]

US Pompeii. (213)878-2801. Local numbers avail, email, pubs & forums, chat, libraries, and games. [Exp. #102.]

310

A-American BBS. (310)305-0441. 8-N-1, 24 hrs., 300/1200/2400/9600. Programming, scientific, Ham radio, scuba, adult images, jobs, entrepreneurial forums. Sysop: John Lewis. [Exp. #102.]

Citizen America BBS. (310)453-7564. 8-N-1, 24 hrs., 300/1200/2400. Support for Citizen printers & computers. Sysop: Citizen America. [Exp. #102.]

The Bad Boy BBS. (310)915-8590. 24 hrs., 300/1200/2400. Ham radio, SWL, scanner info. OCAPS approved. Access first call, free. Sysop: Danny Barker. [Exp. #103.]

Compu-Net! BBS. (310)823-3609. 300/1200/2400/9600. 1GB, 15 separate systems in one call. Adult, finance, sports, Windows, occult, IBM, and more. [Exp. #102.]

Cosmos. (310)539-3078. 7:30 pm–7:30 am. 2400. One line, WWIV software, subs, huge file section. Sysop: Gabriel Hayes and Wayne Pan. [Exp. #103.]

Digital Visions. (310)408-0490. 8-N-1, 24 hrs. GIF images, Raytracer programs, Special EFX Animation created by the sysop and users. Free sample files. Sysop: Dion Kraft. [Exp. #102.]

Drug Abuse Information (DIAMP). (310)825-3736. 8-N-1, 24 hrs., 300/1200/2400. Drug information, statistics, bibliographies, forums, email, downloads, and uploads. Free membership, reg. requested. Sysop: Greg Cason. [Exp. #103.]

The Forbidden Zone. (310)929-4460. 24 hrs., 300–16,800. 20MB PD transfers, games, taboo msg. base, fees optional. Sysop: Beltair [Exp. #102.]

The Great CHR$(27). (310)693-7907. 24 hrs., 1200/2400. 12 Steps, BASIC Programming, C, TECH Talk. No fees. [Exp. #102.]

Hatch.uucp. (310)822-3970. 1200/2400/9600. Usenet feeds, 1200 Newsgroups, worldwide internet email, domain addresses avail. Sysop: Mike Barnadett. [Exp. #102.]

Kluged—The Anarchist's BBS. (310)432-5305. 8-N-1, 24 hrs., 300/1200/2400. Open to anything. Shareware, games, programs, graphics, and message base. Free. Sysop: Martin. [Exp. #102.]

La Mirada's The Modems Delight BBS. (310)944-1221. 24 hrs., 300/1200/2400/9600. Multi-interest files, doors, games, and fun. Running Telegrad BBS v2.7, BlueWave Echo-mail, 1:102/430 Fidonet. Sysop: Ronald Dishon. [Exp. #103.]

LA Computer Society BBS. (310)475-8720. 8-N-1, 24 hrs., 2400 only. Full access to Computer Society members ($36/yr), message bases, SIGs, and club information. Sysop: Debbie Rhodes. [Exp. #102.]

LAMG (Los Angeles Macintosh Group). (310)559-MACS. 8-N-1, 24 hrs, 300/1200/2400/9600. So. Cal's busiest all Mac multiline BBS. 300MB+ of Mac nes, reviews, rumors, and more. [Exp. # 102]

modemBoy. (310)659-7000. 8-N-1, 300/1200/2400. Serving the gay community, instant access. [Exp. #107.]

The Profit Quest BBS. (310)318-1413. 1200/2400. Networking the small and medium-sized business community. Free. Sysop: John Fransosky. [Exp. #103.]

The original off off-broadway BBS. (310)453-7038. 8-N-1, 24 hrs., 300/1200/2400/9600. Non-subscription, text files/messages only. Using MajorBBS software and CompuCom Speedmodem. Sysop: James Gossage. [Exp. #102.]

The South Bay BBS. (310)219-1276. 300/1200/2400. Free, instant access, new. Sysop: Tony Hughes. [Exp. #102.]

South Bay Commodore Users Group (SBCUG). (310)643-8818. 24 hrs., 300/1200/2400. Graphics and library. Sysop: Jeffery Baldwin. [Exp. #102.]

619

Big Sky BBS. (619)368-0997. 8-N-1, 24 hrs., 300/1200/2400/9600/14,400. 810MB online, TAG, Amiga and IBM files and programs, Fred Fish, music, adult. Online first time. Sysop: Larry Wieland. [Exp. #102.]

Satang BBS. (619)364-0033. 8-N-1, 24 hrs., 300/1200/2400. 170MB online, Wildcat! IBM files & programs, religion and metaphysics. Sysop: Ed Shimko. [Exp. #102.]

Techpro BBS. (619)755-7357. 300/1200/2400/9600/14,400. San Diego technical jobs. *USA Today*, *Boardwatch*, *Microbytes Daily*. 100% free. [Exp. #103.]

714

Astronomer's BBS. (714)738-4331. 2400. Digitized space images, NASA news, piggyback AMSAT BBS, daily satellite GIFs. Sysop: Walter Clark. [Exp. #102.]

The Central Office Public Data eXchange. (714)840-2437. 24 hrs., 300–14,400. Telecommunications, off-highway vehicles, Baja California/Mexico. Three BBSes in one, each independent. [Exp. #102.]

Commodore Automated Terminal BBS. (714)979-8333. 24 hrs., 1200/2400. C64/128 help, private mail, email, online games. [Exp. #103.]

Commodore Computing. (714)673-2185. 8-N-1, 24 hrs., 300/1200/2400. 64/128. Tech support and games. No reg fee. Sysop: Stephen Fabre. [Exp. #103.]

Computix. (714)540-6217. [Exp. #104.]

Controversy Now! BBS. (714)821-4548. 2400/9600/14,400. Specializing in a wide assortment of adult files and other useful programs. Free. Sysop: Larry Xikis. [Exp. #104.]

Diaspar Virtual Reality Network. (714)831-9101 (2400), 362-9995 (9600). Home EduTainment Center, 20+ lines, experience virtual reality. Sysop: David Mitchell. [Exp. #103.]

The Drop Zone! BBS. (714)245-3854. Games, utilities, adult GIFs, nationwide echo-net, 1.2GB online. Reg required. Sysop: Rick Simmons. [Exp. #103.]

Easy Street. (714)590-4307, 778-5473. 8-N-1, 24 hrs., 300/1200/2400/9600. 20,000+ files, adult fun, 42 lines w/local access throughout Orange County. [Exp. #102.]

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By John Wolcott

LYNZIE'S MOTHERBOARD

Lynzie's Motherboard has been faithfully serving Southern California BBS users for years. Over these years, Lynzie Flynn's system has provided upgrades that have made it a top-notch arena for even the most demanding users. The features are plentiful and offer all that one could ask for: extensive shareware and public domain files, electronic mail to other users of the system, a variety of Group Chat channels, Special Interest Group (SIG) forums, system user biographies, and information database files. Everything is designed to keep you entertained and informed.

Logging on to the system is simplified with prompts for all information requested, with an extensive biographical questionnaire that other system users may immediately access. This allows the users to obtain information about each other without painstakingly typing personal details every time someone new comes into a group chat. System operators promptly verify the information provided to allow full access.

The BBS system is completely menu driven and has a complete help file for those times you find yourself at a loss for proper command syntax. If the help files don't help, you may post questions; or at log-off, you are conveniently prompted for an opportunity to leave a message for the sysop. Either way, the answers are prompt and courteous.

Two gigabytes of shareware and public domain files in the Library offer a wide range of IBM and Macintosh utilities, graphics, music, fonts, and games. If you can't find an application you're looking for here, it's not available.

Each time you call the system, you are automatically advised of your new messages. The email is in a standard online text editor format. This allows you to address a message to any other system user, enter a title for your message, and compose text line by line. You may go back into the message and edit lines as necessary before posting a final draft. When reading a message or a reply from another user, the command line gives you an opportunity to reply to the message or just delete it.

Group Chat is a very entertaining real-time interaction allowing a number of system users to type comments in a group discussion that are viewed by everyone on that particular Group Chat channel. The command structure for chat features is initially difficult to use, but help files are available to decipher the environment. Group Chat channels are divided into specific categories and are rated like movies for what type of message content can be expected (e.g., G, R, or Anything Goes). The Group Chats offer an excellent opportunity to make new acquaintances, and if you're so inclined, you may go to a private chat channel for one-on-one discussion. Commands from most menus in the system allow you to view who is currently logged into the system and invite someone into a Group Chat or page them with a message.

The SIG forums allow users with particular interests or hobbies to post messages, ask or answer questions, or just view past messages posted there. The forums run the gamut of topics and users are sure to find something there that is of interest.

The information files contain a wide range of topics including technical support phone numbers, a Lynzie's Motherboard members list, Amateur Radio callsigns of members, and a library of downloadable files. Also available is information for modem use, serial communications, hard disk usage, special organizations and phone numbers for the disabled, the United States Constitution and Amendments, phone numbers for Los Angeles area restaurants, airlines, museums, Los Angeles city and county government offices, and even Los Angeles area recycling centers.

Continued

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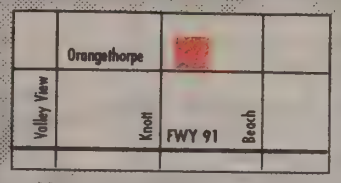

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The French Connection. (714)993-6200. 300/1200/2400/9600. 32 chat lines, online SIGs, msg bases, networked, organized socials, subscriptions, discount for couples & military. [Exp. #102.]

The Hotline BBS. (714)857-0233, 256-8672. 8-N-1, 24 hrs., 300/1200/2400. PD software, matchmaking, 16 chat lines, social events. Sysop: John Coon. [Exp. #102.]

Infinity BBS. (714)379-1335. 16 lines, one GIF file library, teleconference, games, email, and current satellite weather pics. Sysop: Eric Robitaille. [Exp. #102.]

Lake Forest BBS. (714)770-0728. 8-N-1, 24 hrs., 300/1200/2400. IBM only, using Gap for forums, doors, and filebase. Free. Sysop: Joe Hsu. [Exp. #104.]

The League BBS. (714)979-9230. 8-N-1, 24 hrs., 1200/2400/9600/14,400. Multi-node chat, CyberNet echo-mail, 1.4GB, IBM shareware, Windows 3.x apps/utils. Sysop: Nathan Renich. [Exp. #102.]

MacShack BBS. (714)373-0656. 24 hrs., 2400. Mac, amateur radio, consumer interest. Sysop: Dude B. Narley. [Exp. #102.]

The Master Connection BBS. (714)651-9815. 24 hrs., 1200/2400/9600. Lots of games, utilities, graphics. No fee. Sysop: Mark Duvall, Jr. [Exp. #103.]

Music Insider BBS. (714)992-2721. 24 hrs., 1200/2400. For the pro: songwriter, musician, MIDI user, and player. Electronic "tip sheet," w/40+ major recording artists currently looking for material. Sysop: Douglas Boughter. [Exp. #103.]

Online Exchange. (714)870-4614. 2400–14,400. Shareware, large adult GIF file area, games, 2.5GB online. Sysop: Bob Aune. [Exp. #102.]

The PC Sports Connection. (714)533-6728. 8-N-1, 24 hrs., 300/1200/2400. Using Searchlight for unique games, fantasy leagues, and sports talk. Sysop: Keith Jefferson. [Exp. #102.]

Sherlocktron. (714)492-0724. 8-N-1, 24 hrs., 2400. Sherlock Holmes BBS with lists of societies, publications, and purveyors. Sysop: Willis G. Frick. [Exp. #104.]

Starbase Atlantis. (714)871-8810. 1200/2400. Fun for all, esp. Tradewar players. Sysop: James Wihardja. [Exp. #103.]

Trixie's Doghouse. (714)499-2864. 8-N-1, 24 hrs., 300/1200/2400/9600/14,400. Specializing in topics related to pets. Full access with callback. Sysop: Jason MacDonald. [Exp. #102.]

War Techs BBS. (714)529-7245. Over 30 online games, multinode, 150 msg bases, adult files. [Exp. #104.]

WinSIG BBS. (714)363-9802. 24 hrs., Windows 3.xx shareware. Sysop: Firas Bushnaq. [Exp. #102.]

818

20th Century BBS. (818)305-8300. 8-N-1, 24 hrs., 300/1200/2400. Multiline, chat, email, SIGs, databases, new user help. Sysop: Steve Aranyi. [Exp. #102.]

AABBS (Asian American BBS). (818)284-4519. 24 hrs., 300/1200/2400/9600/14,400. Special focus on business projects, networking, and overseas communication. Large list of Chinese community associations. Sysop: Jim Chen. [Exp. #104.]

African American BBS! (818)793-9155. P-Funk online, sports, issues, health, business. Check it out. Free. Sysop: Jeffery Mitchell. [Exp. #103.]

Americom. (818)967-3108. 10 pm–8 am. Laserdisc! Video, photo, file, radio communications. Using BlueWave offline mail system. [Exp. #104.]

Aussie BBS. (818)337-9701. 8-N-1. 10 lines, chat, games, high-quality adult GIFs, 18,000 files. Sysop: Mike Szabados. [Exp. #102.]

AutoComp Computer Classifieds. (818)767-8087. 24 hrs. Nation wide message forum, personal ads w/photos, private chat rooms. Sysop: J. Macoy. [Exp. #104.]

Bad-Boy's BBS. (818)946-9304. 24 hrs., 2400/9600/14,400. Fido 1:102/851.6. No fees. Sysop: Brandon L. Heess. [Exp. #102.]

BBB-BBS. (818)982-7529. 2400/9600. Multiline chat, online games, netmail, large files section, GIFs, and shareware. Sysop: Mike Sobetzko. [Exp. #102.]

The Board. (818)366-8874. 8-N-1, 300/1200/2400. Email, shareware, job opportunities listed. Free access. Sysop: Ed Jeffers. [Exp. #102.]

Chatterbox! BBS. (818)995-6959. 8-N-1, 24 hrs., 2400/9600. All adult, GIFs, shareware, freeware, multiline chat, library, games, and CD-ROMs. Sysop: Don Adler. [Exp. #102.]

Hoptips BBS, Glendale. (818)248-3088. 122/9600/14,400. 5 lines serving the needs of the professional; extensive coverage of the office environment; 1-2-3 and WordPerfect conferences. RIME network. Sysop: Mike Callaghan. [Exp. #102.]

INFOmania BBS. (818)791-8680. 8-N-1, 24 hrs., 300–14,400. Fidonet, Racenet, and Business-net conferences, DOS utilities. Free access on first call. [Exp. #103.]

InvestorLink. (818)960-9362. 24 hrs., 2400. Financial stocks, Real Estate, Mutual Funds, daily updates. Free. Sysop: Steve Painter. [Exp. #102.]

Mysteria. (818)353-8891. 300–14,400. Metaphysics and general. Fidonet. Free. Sysop: Phil Hansford. [Exp. #102.]

Out Of The Blue BBS. (818)332-2227. 8-N-1, 2400. [Exp. #104.]

Panasia BBS. (818)569-3740. 1200–14,400. Glendale, QWK/REP, Intelac RegHub, no fees. [Exp. #103.]

Parthenon BBS. (818)727-7070. 24 hrs., 300/1200/2400/9600/14,400. Utils, Windows, Toshiba stuff, Usenet feeds. Sysop: Steven Foster. [Exp. #103.]

Showtime BBS. (818)285-3185. 1200/2400/9600. Files, graphics, games. Hobbyists welcome. [Exp. #102.]

Southland Matchmaker. (818)793-9108. Pen-pal system, multilines, chat, games. Enter "mm" at login prompt. [Exp. #102.]

Tin Shack BBS. (818)992-3321. Over 1GB of free downloads, immediate access, multiline. Sysop: Guy Nohrenberg. [Exp. #102.]

Tri-City Apple BBS. (818)288-6540. 8-N-1, 24 hrs., 2400. Mostly Apple II, email, PD, UL/DL. [Exp. #102.]

Valley Apple Computer BBS. (818)782-6471. 300/1200/2400. Friendly to beginners, uploading and downloading Apple II only. [Exp. #106.]

Valley Village BBS! (818)763-8160. 8-N-1, 24 hrs., 1200/2400/9600. Multi-line chat, online games, dors, mail, 20,000+ files. Sysop: Dan Praeger. [Exp. #103.]

Wizardry BBS. (818)222-4444. 1200/4800/9600/14,400. Chat, games, U/L, D/L, mulitline. Free. [Exp. #104.]

916

Video ViSion BBS. (916)682-1655. 24 hrs., 300/1200/2400/9600. Games, graphics, Windows & source code. 360MB. Sysop: Roel Sarceno. [Exp. #102.]

MULTI-ZONE

AOS—Avatar Online Systems. (213)888-2362, (714)524-8996, (818)969-8BBS. 8-N-1. 32 lines, chat, games, tutors, etc. Free trial, 10% discount when referring to *MicroTimes* on application. Sysop: Nancy J. Teppler. [Exp. #102.]

Barter Exchange. (213)871-1304, (805)373-3871, (818)999-1829, (818)879-8547, (818)787-6408. Alternative age 21 and over multiline BBS, adult themes, library, and GIFs. Thurs. nights are for TBE. [Exp. #104.]

Blazin' Bytes BBS. (310)641-4678, (818)776-2784. 8-N-1. Sixteen lines, chat, email, games, sixty pubs/SIGs, great library. Free month. Sysop: Blazin' Barb. [Exp. #104.]

Entertainment & Consumers Network. (310)204-6007, (818)784-3039. 8-N-1, 24 hrs., 300/1200/2400. Your gateway to the global online community of fascinating people. [Exp. #103.]

KBBS Los Angeles. (310)558-0145, (310)532-1700 (818)989-3875. 8-N-1, 300/1200/2400/9600. LA's busiest, with 32,000 channel chat, 13,000+ files, 32 lines, parties, over 3000 members. [Exp. #102.]

LA Online. (310)372-4050, (714)447-0449, 441-0693, (818)577-2131. LA's largest online service. Shopping, events, movies, local news, dining, and more. Free. [Exp. #103.]

Lynzie's Motherboard. New users are generously supplied with two weeks of free system usage to get acquainted and determine whether they can use system features to meet their needs. Following the trial period, system subscription ranges from $18 to $120 depending on your usage needs and term of subscription. Lynzie's Motherboard is also accessible through SprintNet's PC Pursuit. Downloading of files from the system Library is limited to regular subscribers. Lynzie's motherboard supports 300, 1200, and 2400 baud rates. Located in Studio City, the system is a local call from most areas due to the substantial number of foreign exchange lines available.

Lynzie's Motherboard is feature-rich and certainly worth considering for all of your BBS needs. Lynzie's Motherboard. (213)848-2700, (714)776-4198, (805)482-5776, (818)989-3875, more local numbers available online. 8-N-1, 24 hrs., 300/1200/2400. Sysop: Lynzie Flynn.

Modem Butterfly. (213)264-6900, (310)767-1010, (805)581-0700, (714)828-5500, (818)798-9900. 8-N-1, 1200/2400. Instant access, 800MB, SIGs, 33 conference lines, events, trivia contests. [Exp. #107.]

Original Apple Corps BBS. (213)454-4660, (310)454-4660. 300/1200/2400. Apple II support. Free. Sysop: Sheila Dowst. [Exp. #102.]

The Royal Rook II. (213)934-5749, (818)782-3664. 8-N-1, 24 hrs., 1200/2400. Musicians support board, SIGs, email, teleconferencing. First month free. Sysop: LaJenna Clark. [Exp. #103.]

Is Your Listing Missing?

Free user group and association listings are limited to the group's name and a ten-word description, including the mailing address and contact phone number. They will be **deleted at six-month intervals** to ensure timeliness and accuracy of information. **Free BBS listings** are also limited to the board's name, sysop's name, and a ten-word description including parameters, baud rate, phone number, and registration fee. Because we have an ongoing problem of boards shutting down without telling us, much to the annoyance of would-be callers and the new phone number's owner alike, we will **delete these listings after they've run three months.**

You can update or renew your listings at any time. If yours is missing, send us a new one! Send your listing information to: US Mail should go to: MicroTimes User Group, 3470 Buskirk Ave., Pleasant Hill, CA 94523. **Faxes** are welcome at (510)934-2417 or (213)467-5486.

Email can be sent to: microx@well.sf.ca.us. Or MCI:MICROTIMES.

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ADAPTEC AHA-1542B SCSI Floppy/Hard Disk Adapter(Card Only) .. $238
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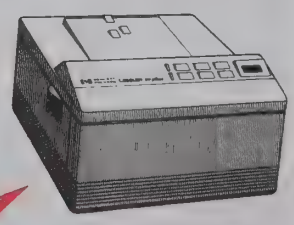

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ASSOCIATIONS

Black Data Processing Assoc., LA Chapter. Meetings: 4th Tues., 6:30 pm, ULTC, 7266 S. Figueroa St., Los Angeles. Call: (310)673-6522, 1-800-727-BDPA. [Exp. #107.]

Data Processing Management Association. Meetings: 2nd Thurs., 7:00 pm. An organization composed of all levels of management personnel who have an interest in the field of information processing. Call: (310)549-9680 or (213)225-9210. [Exp. #102.]

Independent Computer Consultants Association, Los Angeles Chapter. Meetings: 1st Thurs., 6:00 pm. Prepaid reservation, $25, or at the door, $35. The LA chapter provides referral services. Call: (213)872-1811. [Exp. #104.]

Microcomputer Managers Association, Los Angeles Chapter. A forum for the discussion of issues relating to implementing and supporting microcomputer technology. Call: (213)243-6843. [Exp. #103.]

Orange County Association Of PICK Professionals. Meetings: 3rd Wed., 6:00 pm, Claim Jumper Restaurant, 18350 Brookhurst St., Fountain Valley. Dinner: Members, $20; nonmembers, $25. Without reservations add $5 additional. Call: (714)641-6347. [Exp. #102.]

The Software Council Of Southern California (SCSC). Non-profit organization for software developers to have a (peer-to-peer) networking and educational forum on industry issues. Call: (310)328-0043. [Exp. #104.]

USER GROUPS

ACCOUNTING

Orange County ACCPAC Plus Accounting Software User Group. Meetings: 3rd Mon., 6:00 pm. Call: (714)535-5417. [Exp. #107.]

ADAM

Inland Empire Adam User Group. Meetings: 3rd Sat., 12:30 pm, Anaheim Public Library, 1340 S. Euclid. Since 1986, LA and Orange Ccunties' only group and newsletter for the Coleco Adam. Call: Tom, (714)538-6254. [Exp. #105.]

AMIGA

LAAUG—Los Angeles Amiga User Group. Meetings: 3rd Wed., 7:30 pm, Veteran's Memorial Auditorium, Overland Ave. & Culver Blvd. Many SIGs, rookies, monthly PD disks. Call: Kip Hammond, (310)390-3010. [Exp. #105.]

San Fernando Valley Amiga User Group. Meetings: 2nd Tues., 7:00 pm, Meeting Room, Fallbrook Mall. Call: Tony, (818)985-0476. [Exp. #103.]

South Orange Commodore Klub—SOCK. Meetings: 3rd Sat., 9:00 am, Computer Guild, Suite 1003, 24001 Via Fabricante, Mission Viejo. New Location. Supports Commodore and Amiga, new users SIG. Call: Don, (714)830-2430. [Exp. #102.]

APPLE

Orange Apple Computer Club. Meetings: 1st Sat., 9:00 am, Orange Coast College, Chemistry Lab. Apple II supported. Call: (714)731-9243. [Exp. #104.]

Original Apple Corps, Apple II User Group. Meetings: 2nd Sun. Support for beginners through experts. Write: PO Box 90065, Los Angeles, CA 90009. Call: Fred Duffy, (310)475-8400. BBS: (310)454-4660. [Exp. #104.]

Tri-City Apple Users Group. Meetings: 3rd Thurs., 7:00 pm, Pasadena Central Library, 285 E. Walnut St. Friendly Apple II experts. Call: (213)258-0281. [Exp. #106.]

Valley Apple Computer Club. Meetings: 3rd Tues., 7:30 pm. Aggeler High School, 21050 Plummer, Northridge. All Apple IIs, no Macs. Call: Bill, (818)988-1752. [Exp. #106.]

ATARI

ATESIG—Atari 8-bit SIG. Meetings: 145 Surf Pl., Seal Beach. Cooperative user group for Model Railroad applications. Call: (310)430-5433. [Exp. #106.]

RAM Atari ST User Group Of Ventura County. Meetings: 3rd Wed., 7:30 pm, Call: Tim, (805)389-0059 or write PO Box 112, Camarillo, CA 93011. [Exp. #102.]

South Bay Atari Computer Enthusiasts. Meetings: 2nd Tues., 7:30 pm, Lomita VFW Hall, 1865 W. Lomita Blvd. Active since 1985, novices & all skills welcome. Call: (310)375-4839. [Exp. #102.]

CAD/CAM

Los Angeles Area AutoCAD User Group. Meetings: 4th Wed., 6:30 pm, Burbank Board of Realtor's Bldg., 2006 W. Magnolia Blvd., Burbank. Meetings feature tutorials, Q&As, demos, hands-on, BBS, and newsletter. Call: M. Berman, (818)762-9966. [Exp. #102.]

CLIPPER

Los Angeles Clipper User Group. Meetings: 4th Wed., 6:30 pm, Culver City. Techy talk and speakers. Call: Louise Astorga, (818)886-1574. [Exp. #107.]

COMMODORE

C128 West Commodore 128 User Group. Meetings: Covina & Santa Monica. Free membership. Large disk library. Call: John, (818)331-1589; Paul, (818)892-3859; BBS, (714)598-1755 FidoNet. [Exp. #104.]

C-TUG (Commodore Technical User Group). Meetings: Western Federal Savings And Loan, 2233 N. Tustin Ave., Orange. Speakers, demos, help with any Commodore and Amiga questions. Call: Lou Palush, (714)532-1802. [Exp. #104.]

Commodore Helpers Of Long Beach. Meetings: 2nd Sat., 9:00 am. St. Timothy's Lutheran Church, Woodruff and Arbor in Lakewood. Supports 64/128 models. Call: Tom Hoy, (310)424-0508. [Exp. #105.]

Orange County Commodore Club. Meetings: 4th Sat. Orange County Public Library, Park Ave. Branch, 1855 Park Ave., Costa Mesa. Call: Mike Moore, (714)668-9715. [Exp. #105.]

South Bay Commodore Users Group. Meetings: 3rd Thurs, 7:00 pm. SEC Redondo Generating Station, 1100 Harbor Dr. (across from King Yacht Harbor). Free and open to all who use or own Commodore computers and to those who would like to receive or exchange information on programs, applications, or hardware. Call: (310)324-8357. [Exp. #102.]

CORELDRAW

Association Of Corel Artists & Designers, LA Chapter. Meetings: Next to last Tues., 7:00 pm, Glendale Federal Bank Building, 401 N. Brand Blvd. An international nonprofit user group network for anyone using or interested in CorelDraw. Call: (310)452-5637. [Exp. #102.]

DESKTOP PUBLISHING

Southern California Ventura Publisher User Group (SC–

Continued on page 192

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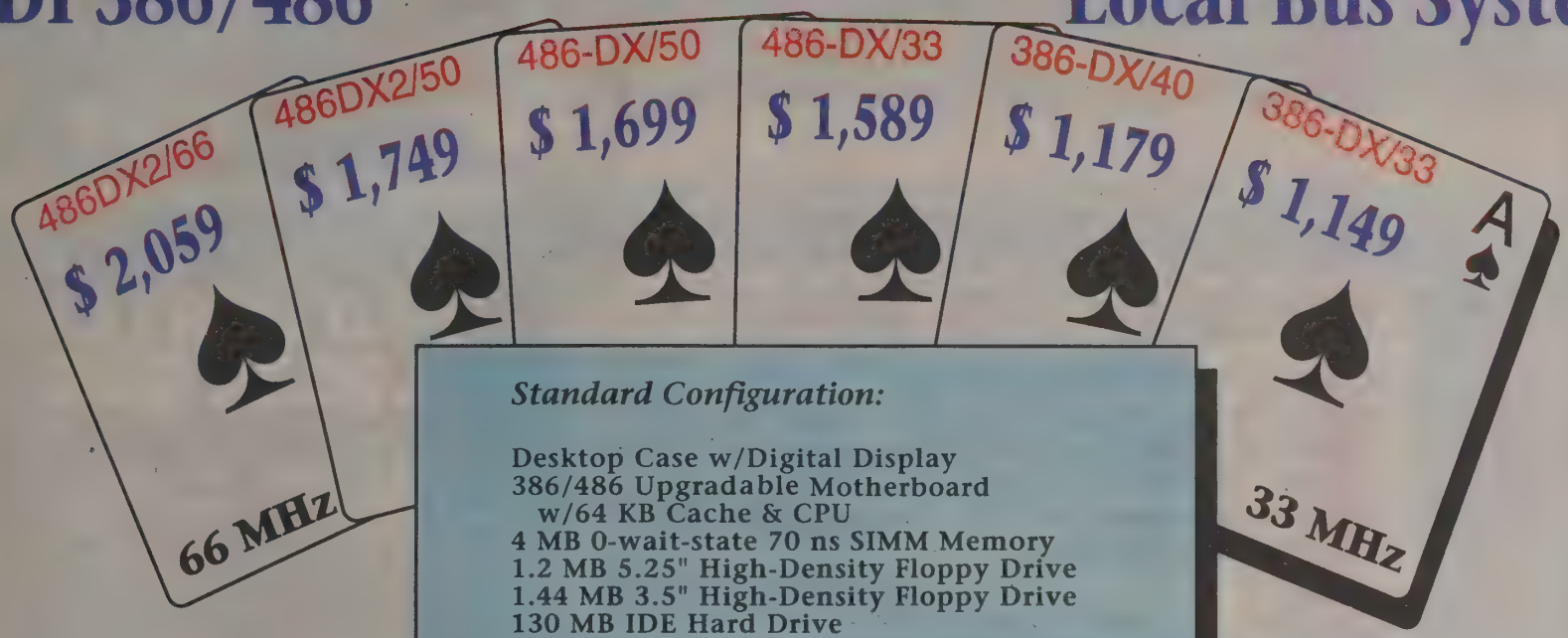

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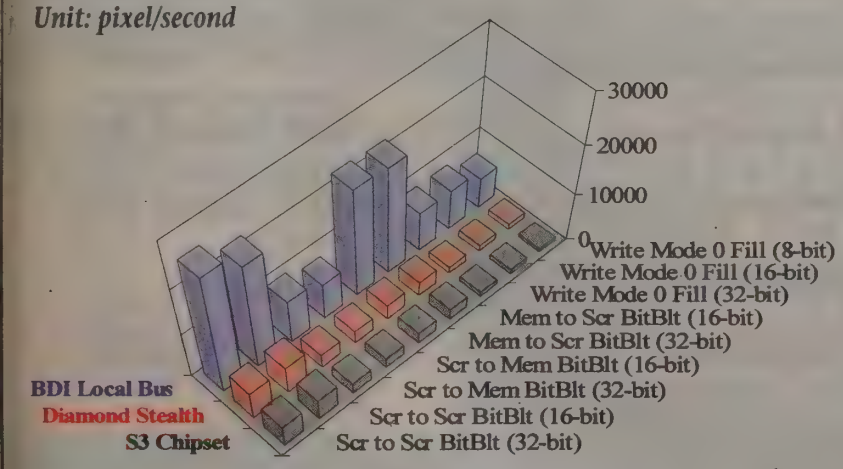
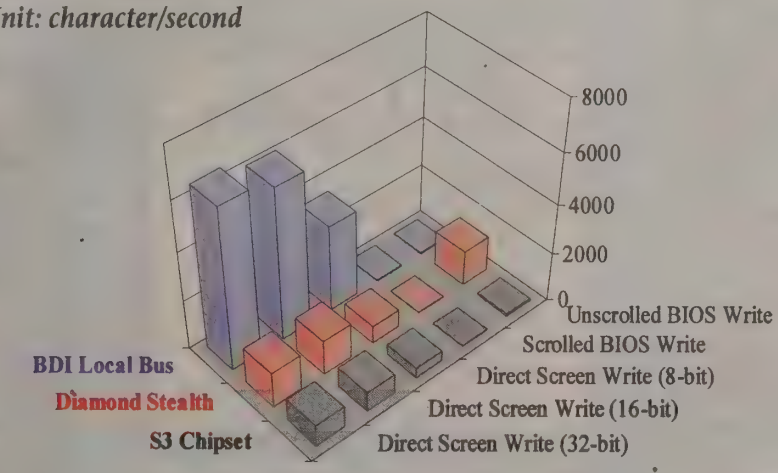
Graphics Performance Comparison
Unit: pixel/second



Text Performance Comparison
Unit: character/second



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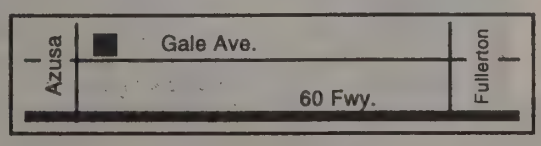

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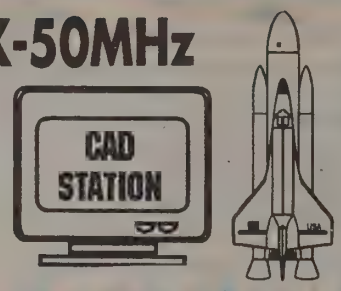

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- BUILT-IN 3.5" 1.44 MB FLOPPY DRIVE
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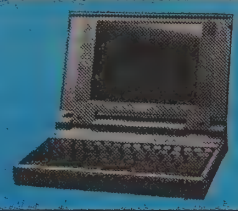

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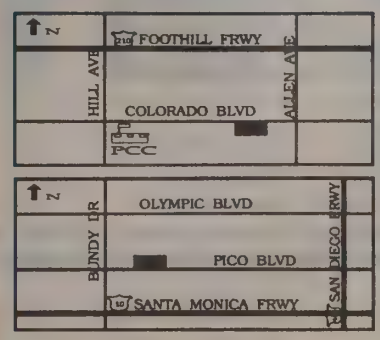

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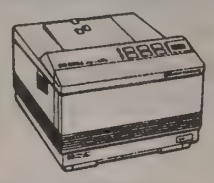

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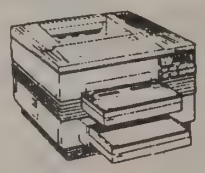

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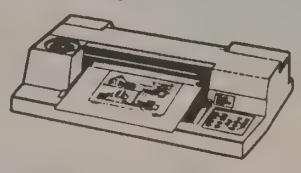

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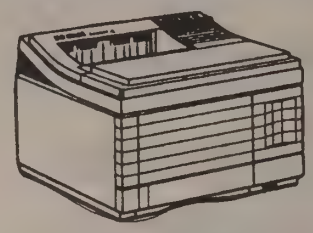

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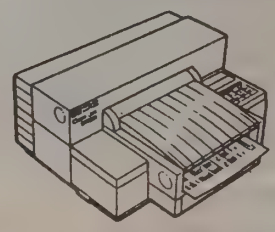

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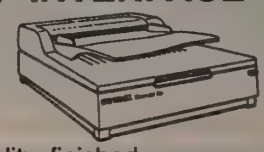

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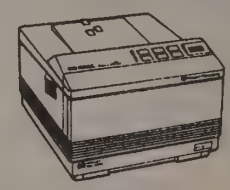

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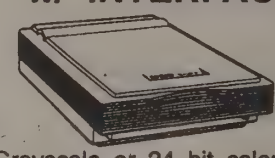

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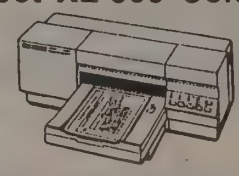

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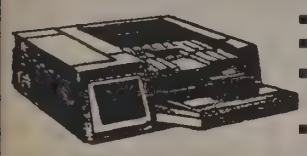

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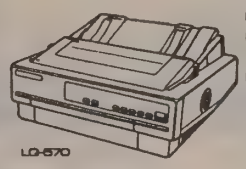

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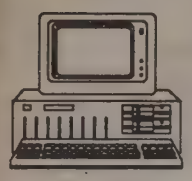

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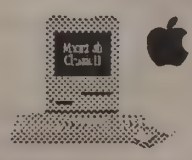

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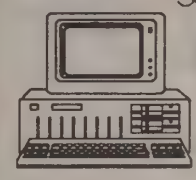

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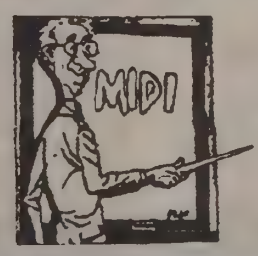

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Orange Coast IBM PC User Group. Meetings: Last Sat., 9:00 am. Orange Coast College. Speakers, BBS, software library, newsletter, and SIGs. Everyone welcome. Call: (714)843-2048. [Exp. #102.]

Public Domain User Group. 1000s of programs for IBM, CP/M, and Commodore computers. For catalog send SASE to: Zoltan Berbely, Disk & That, 1226 E. 7th St., Los Angeles, 90021. [Exp. #105.]

Thousand Oaks Personal Computer Club (TOPCC). Meetings: 4th Thurs., 6:30 pm, Goebel Senior Adult Center, 1385 E. Janss Rd., Thousand Oaks. Call: (805)496-9699. [Exp. #107.]

Valley Computer Club. Meetings: 1st Wed., 7:00 pm, Burbank Board of Realtor's Bldg., 2006 W. Magnolia, Burbank. BBS, PD library, SIGs, newsletter. All welcome. Call: (818)842-3707 or (213)227-9684. [Exp. #102.]

Ventura PC User Group. Meetings: 3rd Sat., 9:00 am, Poinsettia Pavilion, Canada Larga Rm., 3451 Foothill Rd., Ventura. Guests welcome, no charge for attendance. Call: Kenn Ritza, (805)644-6955. [Exp. #102.]

KAYPRO

West Los Angeles Kaypro User Group/KAYOS Kaypro User Group. Meetings: 4th Mon. of even months, 6:30 pm, El Segundo. Call: Margot, (310)379-8339. [Exp. #104.]

K-MAN

Southern California KnowledgeMan User Group. Meetings: 1st Wed., 7:00 pm, Honda North America, Bldg. 300, 700 Van Ness Ave., Torrance. Call: (213)662-9910. [Exp. #104.]

MACINTOSH

The American Film Institute Mac User Group (AFIMUG). Meetings: 2nd Mon., Apple Lab, AFI, Hollywood. TV, film, and video. Call: Dave Chadderdon, (213)856-7743. [Exp. #103.]

Los Angeles Macintosh Group (LAMG). Meetings: 3rd Thurs., 7:30 pm, Dept. of Water & Power, 111 N. Hope St. So. Cal's largest all-Mac user group meetings, monthly magazine, classes, PD software, and more. Call: (310)278-LAMG. [Exp. #105.]

Original Apple Corps, Macintosh User Group. Meetings: 2nd Sun. Support for beginners through experts. Write: PO Box 90065, Los Angeles, CA 90009. Call: Fred Duffy, (310)475-8400. BBS: (310)454-4660. [Exp. #104.]

San Gabriel Valley Mac Users Group. Meetings: 1st Thurs., 7:30 pm, Pasadena Central Library Auditorium. Call: (213)684-ICON. [Exp. #101.]

South Bay Apple Macintosh User Group. Meetings: Last Wed., 7:30 pm, Pacific Elementary School, 1214 Pacific Ave., Manhattan Beach. Call: (310)644-3315. [Exp. #105.]

West Orange County Macintosh User Group (WOCMUG). Meetings: last Tues., 7:00 pm, F&M Bank, 12535 Seal Beach Blvd., in the Rossmoor Shopping Center. Visitors always welcome! Topics for beginning to advanced users. Call: (310)493-1240. [Exp. #104.]

NETWARE

Kern County NetWare Users Association. Meetings: 3rd Thurs. (no meetings in July, August, and December), 5:45 pm, Occidental Bldg., 1200 Discovery Way, Bakersfield. Call: William Morrison, (805)763-6933. [Exp. #105.]

NETWORK

TUG-NET. Meetings: 1st Thurs., 7:00 pm, Tektronix Corp., 21300 Erwin St., Woodland Hills. Enter through back door of building, press buzzer. Call: (818)249-1629. [Exp. #107.]

NeXT

Southern California NeXTSTEP User Group. Meetings: throughout LA County. Call: Mike Mahoney, (310)985-1550 or Bob Desharnais, (213)343-2056. [Exp. #103.]

OS/2

LA OS/2 User Group. Meetings: 3rd Thur., 6:30 pm, IBM, 21041 Burbank Blvd., Woodland Hills. Call: Paul Duncanson, (805)584-8732. [Exp. #107.]

TEXAS INSTRUMENTS

TI/944A Home Computer User Group. Meetings: 2nd Mon., 7:00 pm, Pomona First Federal, 9090 Central Ave., Montclair. Monthly newsletter, demos, and fairware. Call: (714)627-3403. [Exp. #102.]

UGOC. Meetings: 2nd Mon., Fidelity Federal, 13820 Seal Beach Blvd. Call: Joan, (714)633-5379. [Exp. #107.]

THEOS

THEOS User Group. Call: Fred Bellemy, (805)965-0265. [Exp. #105.]

UNIX

UNIX User Association Of Southern California. Meetings: 2nd Mon., 7:00 pm, New Horizons Learnings Center, 1231 E. Dyer Rd., Santa Ana. Call: Vince, (714)556-1220, ext. 126. [Exp. #104.]

VIDEO TOASTER

TUG—Toaster Users Group Of Orange County. Meetings: 3rd Thurs. Call: Bruce, (714)894-1777. [Exp. #102.]

TVN—The Toasted Video Network. Video Toaster Network. Call: James, (714)695-1665. [Exp. #103.]

VIRTUAL REALITY

Virtual Reality Special Interest Group (VRSIG). Meetings: The Electronic Cafe, 1649 18th St., Santa Monica. Call: Dave Blackburn, (310)545-0369. [Exp. #105.]

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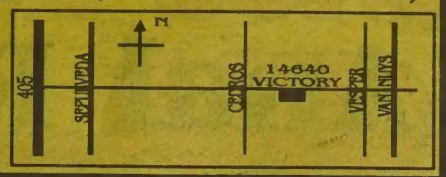

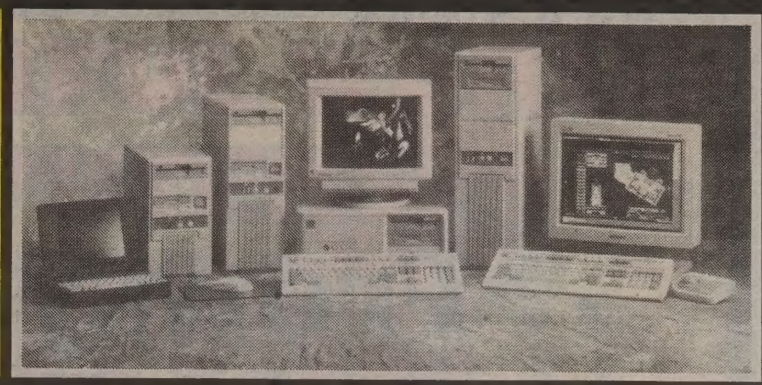

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Frowsy Anal Retentive Twits For Perot

An Interview With One Of The Industry Pioneers

BY JOHN C. DVORAK

Howard F. Howard, known as the Old F.A.R.T. of computing, was granting one of the few interviews he'd ever given. Luckily it was with me.

Dvorak: Well, Mr. Howard, on behalf of *MicroTimes* I want to thank you for the chance to interview you. You're very well known in the computer community.

H.F.H.: Then interview me. Why waste time with all the fussing and brown-nosing? You young punks don't have a clue, do you?

Dvorak: Well, maybe, maybe not. Anyway, how did you get started in computing?

H.F.H.: The ENIAC was the first machine I programmed on. You kids don't know how rough it was back then to get an answer to a simple calculation request. And, later, when the big disks came along—man they were something. It took weeks for one to get up to speed. It took days and days to do a cold boot back when I was a kid. Nowadays people complain about waiting a few seconds. What's wrong with the world that it can't wait a few seconds?

Dvorak: You were involved in the early days of personal computers too.

H.F.H.: Microcomputers, dammit. Microcomputers. Don't they teach you anything in school? Personal computers schmersonal computers. Who dreams up these names? They were invented as microcomputers. How did they change to personal computers? Do you know them personally?

Then we have desktop computers. To me that means a big flat desktop onto which you put things. A "desktop" computer...get it?

Dvorak: Well, names seem to change as the market changes.

H.F.H.: Market schmarket. This is just another crock of dung. These marketing guys should be shot—along with the lawyers and the journalists.

Dvorak: What was your first microcomputer?

H.F.H.: You're going to let that last comment slide? Wimp!

OK, my first microcomputer was an Altair 8800—a man's machine until that punk kid Bill Gates put BASIC on it. That was the day the dream died.

Dvorak: That was almost immediately. How could the dream die because of BASIC?

H.F.H.: Real men don't code in BASIC. They code with panel switches in machine code, right into the computer itself. None of this sissy high-level language stuff.

Dvorak: So I take it you don't like Windows or anything with a GUI interface?

H.F.H.: GUI schmooey. Heck, GUI phooey, ptooey. When I was a kid we didn't even have a command line. We told the machine in binary what we wanted it to do. Now everyone wants to point and shoot, click click, point and shoot. Tell them to go get a dog and go duck hunting.

Dvorak: So why did you call me in here for the interview? You must have something specific you want to chat about.

H.F.H.: It's this Ross Perot guy. Is this column running before the election?

Dvorak: Actually it comes out around election time. Most people will be reading this interview after the election is over.

H.F.H.: No matter. Ross isn't going to win anyway. I just wanted to let all the old F.A.R.T.s out there like me know that he is our man. We need someone like him in the White House.

I realized that Frowsy Anal Retentive Twits were all the same kind of jerk. Kind of like me. There are a lot of different kinds, physically. But all of these people are the same breed and Ross Perot is one of them.

Just listen to that marvelous voice as he screeches out his plan for the country. Computer users love him. That haircut. That voice. I'm telling you, the world wouldbe a different place if it were run by old F.A.R.T.s like him. No more free lunch. No more goofing off.

Dvorak: This is what you asked me here for? This is why you're wasting my time?

I thought this was going to be about computers. All you've done was complain about computers and whine about this and that and then tell me that you like Ross Perot. The guy is a crackpot. Can't you find something better to do with your life than something like this?

H.F.H.: You're turning into an old F.A.R.T. too! It's contagious. It's the future.

"I realized that Frowsy Anal Retentive Twits were all the same kind of jerk. Kind of like me. There are a lot of different kinds, physically. But all of these people are the same breed and Ross Perot is one of them.

"Just listen to that marvelous voice as he screeches out his plan for the country. Computer users love him. That haircut. That voice. I'm telling you, the world would be a different place if it were run by old F.A.R.T.s like him. No more free lunch. No more goofing off."

It's a trend, Dvorak! Hahahahaha. Anyone who gets this far in reading this interview is doomed too.

He handed me a Perot T-shirt and left laughing. As he wandered off I noticed that his socks didn't match. ■

DVORAK'S LAST COLUMN

© 1992 by John C. Dvorak. All rights reserved. *John C. Dvorak graduated from the University of California. He is a contributing editor of* PC Magazine *and* MacUser, *and is considered by many to epitomize the contrarian view of things—a charge that he vehemently denies. Dvorak's motto is: If you have nothing nice to say, then don't say anything at all.*

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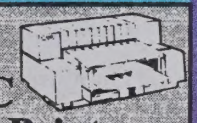

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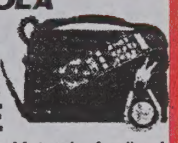

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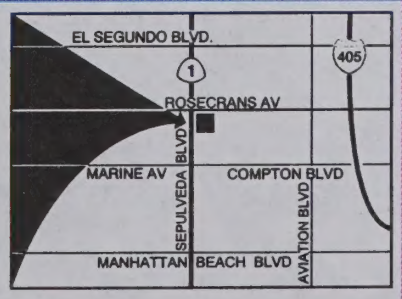

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